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NOTICE

The Society is not responsible for statements made or opinions expressed in the articles, criticisms and discussions published in these *Proceedings*.

"According to the same law of nature, in virtue of which the smallest organism infinitely surpasses the most artistic machine, every institution, however defective, which gives play to the free self-determination of a majority of citizens infinitely surpasses the most brilliant and humane absolutism; for the former is capable of development, and therefore living; the latter is what it is, and therefore dead."

—*Mommsen.*

"In my observation, these disputing, contradicting and confuting people are generally unfortunate in their affairs. They get victory sometimes, but they never get good-will, which would be of more use to them."

—*Benjamin Franklin.*

VOL. XXVIII, PART I NO. 57

PROCEEDINGS

NOVEMBER 14, 1941

SOME EFFECTS OF NEW PREMIUM DETERMINATION PROCEDURES

VICE-PRESIDENTIAL ADDRESS BY HAROLD J. GINSBURGH

At this point in our proceedings we would normally have been privileged to hear an address by our President. Remembering the very thoughtful and constructive presidential address with which he opened our meeting of last May, we could look forward confidently to today to an equally interesting and inspiring message of leadership in furtherance of the purposes of our Society. That the condition of his health keeps him from us today is a cause of distress to us all. It is our earnest hope that he will be with us again very soon. The very brief remarks I have to make to you now may be considered as merely maintaining the tradition that the presiding officer shall address the meeting at its outset. For while as chairman I may sit *in loco Pinnei,* his mantle can not cover me standing here.

It is my thought today to call attention to a few problems which, while not entirely new, I am rather fearful may prove of increasing importance under present trends and conditions, perhaps to the ultimate embarrassment of the casualty insurance business. I believe that it is up to us, whose job it really is, to move to meet these problems before they are tossed into our laps by others with little knowledge of and sympathy for difficulties which we can more fully appreciate.

The first of these problems has to do with gauges of performance and condition in the conduct of the various casualty lines and the business as a whole. The company executive needs such gauges to judge efficiency of operation and the favorableness or unfavorableness of the results obtained. The supervising authority uses them also to determine the validity of the statement of financial condition.

Perhaps the most fundamental of these gauges are the expected loss ratio and the allowable expense ratio for each line of insurance. It might be asked: If the losses and expenses incurred are together less, or at least no more than, the earned premium, isn't everything all right, and isn't that a good enough gauge of performance? Well, as far as it goes, it is, but it doesn't go far enough. It is elementary that for proper administration of the business, a company executive must know whether losses are within their expectancy and whether expenses are being kept within the amount provided for them. Comparison between realized and expected loss ratios, between realized and allowable expense ratios, has given the answer.

In the past it has been a relatively simple matter to determine the expected loss ratio on a volume of premiums written and earned in any particular casualty line. It was in general the expected loss ratio upon which the rates were constructed. The allowable expense ratio on the business under consideration was an automatic corollary. However, within the last few years, procedures for final premium determination have been introduced, particularly in the compensation and liability lines, which destroy this easy relationship. The retrospective rating plan, so widely adopted for workmen's compensation insurance, the various premium discount plans for the same line, reflecting different graduations of expense allowance by size of risk premium, and lastly the comprehensive rating plan, using a completely independent allocation of expense allowances and combining compensation, automobile and miscellaneous liability lines under a single retrospective premium determination,—all have this effect, that the actual earned premium and incurred loss figures of a company in the lines of insurance mentioned are incapable of interpretation in terms of the loss and expense provisions in the basic rates. For workmen's compensation insurance, for example, the expected loss ratio will vary by company and will depend upon the company's distribution of business between that retrospectively rated and that rated on the prospective basis, and within the latter category by the distribution between the portion unaffected by expense graduation discount plans and the portion so affected, and within the latter group by the distribution between various discount plans and by size of risk within such plans. The allowable expense ratio will be similarly variable.

Continuing the workmen's compensation example, it is possible for a company to get a fairly accurate picture on a statistical basis of what its gauges of performance were on business of a completed year of issue. For retrospectively rated risks, the provision for losses is equal to the actual losses limited for each risk to the amount which would produce the maximum premium, plus the net fixed charges for losses above the maximum. The allowance for expenses is equal to the difference between the final actual retrospective premium and the above provision for losses. Thus retrospective premium may be split on a policy-year basis. How such a split may be made for current experience or translated to actual calendar year figures is a question we shall have to consider more seriously if retrospective rating is to affect an increasingly large portion of business. As to risks written under graduated expense premium discount plans, auxiliary records of full standard premiums must be maintained against which the expected loss ratio of the basic rates is applied to obtain expected losses. The difference between the discounted premium and the expected losses so determined represents the amount allowed for expenses. Here, too, it is relatively simple, though at the cost of maintaining extra records, to find the answer as to completed years of issue. It is a somewhat more complex and difficult problem to attain a reasonable degree of accuracy for current and for calendar year figures. Methods similar to those discussed above may be employed on policy year experience of risks written under the comprehensive rating plan, although some arbitrary basis of allocation to line of insurance will obviously have to be applied.

It must be kept in mind that what has been said applies to the analysis of the actual, money-that-can-be-used premium of the companies. This must be our concern, not the premium that would be earned if all policy premiums were to be determined entirely on the simple, straightforward standard basis. A company should be able to know if it is living within its income for each of the two major classes of obligations—losses and expenses. For one thing, if the conditions described are to increase in scope, the difficulties of expense budgeting and expense control are obvious.

From the viewpoint of the supervisory authority the introduction of these various methods of policy premium determination presents problems in interpretation of company statements of results and conditions analogous to those encountered by the companies themselves. Such a schedule as the Casualty Experience Exhibit, set up as it is on an actual earned-incurred basis, can have little meaning as a basis for judging a company's operations in relation to a general standard. The standard itself has become a variable. A given loss ratio, in compensation insurance let us say, may represent profitable operation as to losses by one company, while the same loss ratio in the same line would indicate unprofitable operation by another. The same indicated expense ratio might in the case of one company reflect economical and efficient management and in the case of another company of the same type, and of the same trend of business as to volume, give warning of unwise and inefficient management. The ratios of the Casualty Experience Exhibit of a company could not be viewed in relation to the average for all companies or any group of companies nor even in relation to the expectancies embodied in the basic rates. It would seem desirable, therefore, that consideration be given to adding to the Casualty Experience Exhibit an item which will indicate with reasonable accuracy the loss provision in the earned premiums set forth in the Exhibit and which will therefore also provide a means of determining the provision for expenses. I might point out here that the method of adjustment used in workmen's compensation policy year and calendar year loss ratio data reported for ratemaking purposes, while proper for such purposes, will not produce the amount provided in the actual earned premium in expectation of losses. This is so because that part of the total earned retrospective premium on any risk which provides for losses is not a function of the standard premium.

Another difficulty for the supervisory authority which flows from these new methods of risk premium determination lies in their effect on Schedule P of the annual statement. While the weaknesses of the loss ratio test in Schedule P have long been recognized, it has nevertheless served a useful purpose in supervision. It has stood as an accepted practical method of prevention, the thing to be prevented being the reporting, for statement purposes, of an unduly depressed compensation and liability loss reserve on the latest years of issue. On business on which the loss development is relatively immature, it is obviously a good thing to require that at least as much be set aside for losses, regardless of current indications, as was provided for losses in the premium earned. Of course the adequacy of the premium has considerable bearing on the subject; but even if this important factor did not have to be considered, if it is not known how much of the premium was meant to be used for losses, the loss ratio test in Schedule P loses whatever value it may have had for supervisory authority or any one else. And if the factors which produce this situation grow in importance, and their effect becomes generally recognized, there may well be pressure for a change in the structure of Schedule P. The problem actually is in no sense a new one—a test against company loss reserves in the aggregate which shall be independent of the company's own individual and total estimates. Up to now the best practical answer for general use has been the simple loss ratio test; but now it would seem that a modification of this, or perhaps an entirely new approach employing different criteria, should be sought. Our members who have engaged in research on loss reserve standards might well continue or resume their studies on an intensified level of activity.

In making these few observations on the general question of gauges of performance and condition, I have in no way been concerned with description or appraisal of the procedures which give rise to the conditions discussed. I am here concerned solely with underlining, as it were,—and undoubtedly with repetition for most of you—a situation in which the old and familiar indices of our business must be given a new interpretation, or at least an interpretation which takes into account factors not hitherto present.

In addition to those matters I have already discussed, arising out of some of our newer coverage and premium determination procedures, there is another aspect to these procedures which I believe we cannot with safety neglect to consider. In a recent paper, one of his presidential addresses, Mr. F. S. Perryman pointed out how essential it is that casualty insurance costs be charged to the insured as equitably and closely as possible in accordance with their most probable incidence. But if the insuring public and its official representatives are to be satisfied with what is done, we must have the facts to substantiate it. The development in recent years of premium discount plans and retrospective rating plans in compensation and liability lines focuses attention on the treatment of the expense element in the rate and premium. One of the most constructive proposals yet made for an investigation of the incidence and proper apportionment of the expense element in the total insurance cost was offered by Mr. S. D. Pinney in his presidential address at our last meeting. For myself, I cannot too strongly urge that his proposal be translated into action without delay. The sooner we get these facts the better will be our position. The longer we attempt to proceed without them, the greater our eventual difficulties may prove to be.

The development and increasing use of comprehensive liability policies, and the rating of large defense projects with compensation, automobile and other liability lines thrown together, will inevitably raise some questions on the applicability and practicability of present statistical methods. Some underwriters believe wholeheartedly in the comprehensive idea. They look forward to standard all-coverage, all-hazard rates on a single basis of exposure. They can see no necessity for maintaining statistics of losses and units of exposure for all the various types of liability exposure on comprehensive coverage risks. But other underwriters are like the underwriting executive of a large multiple line company who expressed considerable concern to me over such an outlook. "If I go into a department store," he said, "and buy a number of things, even if they are all for one general purpose, nevertheless I'm not satisfied with being told the amount of the total bill. I want to know the unit cost as well of each type of thing I buy. I'm afraid we may get an unfavorable reaction from the insurance buyers if we try to carry these combinations too far. We must have the details and the facts ready for them."

Now, not being a salesman, I don't profess to know how insurance may best be sold, but whichever of these two points of view prevails, the facts should be ready to sustain it. Determining how best those facts may be obtained, and getting and interpreting them is our job, and one we might well begin thinking about right now. Can present individual line statistical plans be applied with reasonably accurate results to comprehensive policy data? What information can be developed on the practical and theoretical soundness of a single exposure basis, such as payroll, or receipts, or some other element of which the hazard can be taken to be a function? We have these comprehensive policies, and the combination of lines. The question is both as to what the statistical data arising from such policies will mean and as to what it could be made to mean in the ratemaking procedures of the future.

Present trends and conditions with respect to coverage and premium determination procedures not only require a new appraisal of traditional gauges of performance and financial condition, but also place increased emphasis on the need for pertinent detailed facts in order to explain, guide and justify.

AN ANALYSIS OF PREPAYMENT DISCOUNTS

BY

ROBERT J. MYERS

In many lines of fire and casualty insurance it is customary to issue policies for periods longer than one year to be paid for by a single premium at the date of issue. The usual periods are 3 and 5 years with the single premium for the former being 2½ times the annual premium and that for the 5-year period, 4 times the annual premium. Looking at it superficially, the policyholder will probably believe that the 5-year plan is more to his advantage since a discount of 20% is given as contrasted with only 16⅔% for the 3-year plan. However, as will be shown subsequently, this conclusion in most instances is not valid when interest is taken into consideration (as should probably be done in all private insurance matters).

The problem of proper prepayment discounts can be considered either from the policyholder's viewpoint or from the insurance company's viewpoint. As far as the latter is concerned, the problem should be analyzed in terms of the three basic elements of insurance—interest, expense, and risk. Under prepayment the company can earn interest on the excess funds available—a portion or all of which should be credited to the policyholder. In respect to expense there are appreciable savings under prepayment since only one premium is collected rather than several. Probably it may safely be said that the absolute cost in dollars for collection of a prepayment premium is the same as that for collection of an annual premium (exclusive of agent's commission in each case); for each of the renewal years there is a savings to the company equal to the cost of premium collection. The same consideration also applies in respect to dividends when the policy is participating, since such disbursements are made only once under prepayment (at the end of the period) rather than annually. Also it is quite likely that general expenses are somewhat lower under prepayment policies, since persistency is probably improved thereunder. Finally, under prepayment the company for some types of policies (especially fire) has a slightly smaller amount at risk, since the coverage over the remainder of the period is reduced by the amount of any loss without any refund in premium, whereas under an annual premium basis the premiums in the years following the loss could be decreased or the coverage brought back to its original amount. Unlike life insurance the factor of increase in cost with duration probably is of no significance in casualty insurance, so that the average annual risk under a 3- or 5-year term policy is the same as under a 1-year policy.

It may be assumed that from the policyholder's viewpoint, in determining which of the three premium payment plans is best, the only cost element to be taken into consideration is the effective interest rate which he earns from the prepayment discount.[1] Also under prepayment plans he is saved the nuisance of making small premium payments each year.

First, consider the question as to the policyholder's "effective interest rate" under the two prepayment plans as compared to the annual premium plan for various dividend rates. When participating policies are involved, an additional element is introduced. Dividends on annual policies are, of course, paid at the end of each year, whereas under the prepayment plans they are not payable until the end of the period. This has an appreciable influence on the effective interest rate under prepayment, since it may be considered that the company retains a portion of the policyholder's dividends throughout the longer period without paying interest thereon. The effective annual compound rate of interest may be obtained by solving for i in the following equations which equate the annual cost under the two prepayment plans to that under the annual premium basis:

$$\frac{2.5\,(1 - Kv^3)}{a_{\overline{3|}}} = 1 - Kv$$

$$\frac{4\,(1 - Kv^5)}{a_{\overline{5|}}} = 1 - Kv$$

where K is the dividend rate and the annual premium is $1.

[1] Since under such policies the individual probability of loss is relatively small, it is reasonable for the policyholder to neglect to consider the cost to him of "forfeiture" of a portion of his prepayment premium when a loss occurs.

The solution is best achieved by transforming these equations into polynomial equations in terms of i as follows:

$$3\,i^3 + (2\,K + 7)\,i^2 + (6\,K + 3)\,i + (K - 1) = 0$$

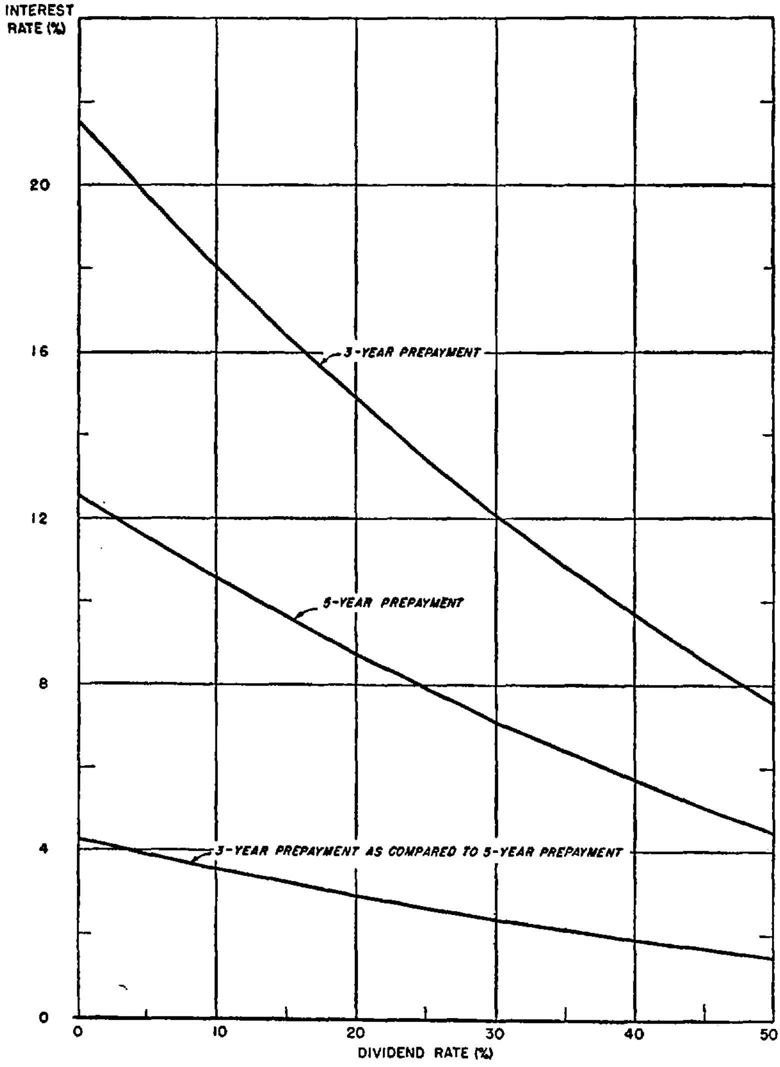
$$3\,i^5 + (K + 14)\,i^4 + 5\,(K + 5)\,i^3 + 10\,(K + 2)\,i^2 + 5\,(2\,K + 1)\,i + (K - 1) = 0.$$

For various values of K these equations may then be solved by successive approximation with results for i being obtained to any desired number of decimal points. Calculations were made for 11 uniformly spaced values of K running from zero (for non-participating policies) to 50%, which is probably a reasonable maximum for dividend rates in casualty insurance. The resulting figures are shown on the chart appearing on page 11.

Under the 3-year prepayment plan the purchaser of a non-participating policy nets an effective interest rate of about 21½% by paying in advance rather than annually.[2] The effective earned interest rate for participating policies is somewhat less and becomes more so as the dividend rate increases (this does not necessarily mean that non-participating policies are the lowest in cost, but rather that the policyholder in such a company obtains a relatively better interest return from a prepayment plan). Where the dividend rate is as high as 50%, the interest return under the 3-year prepayment plan is only about 7½%. Under the 5-year prepayment plan the interest rate earned is appreciably smaller; for non-participating policies the rate is only about 12½%, while for participating policies it is even less, decreasing to only about 4½% at a 50% dividend rate. Thus, the policyholder will usually find it advantageous to pay his premiums under either of the prepayment plans rather than annually, since the effective interest rate earned is so high. There seems to be an inequity between the 5-year prepayment plan and the 3-year one, since the effective interest rate under the latter is about 70% larger, whereas the savings to the company should be greater for longer periods of prepayment.

[2] It should, of course, be recognized that a major portion of this large "interest rate" represents relative savings effected by the company because of prepayment.

EQUIVALENT EFFECTIVE ANNUAL INTEREST RATE EARNED UNDER PREPAYMENT DISCOUNTS



Another procedure is to consider the case of a policyholder who has decided to take a prepayment plan, but is undecided as to whether to take the 3-year or 5-year plan. The comparison of the two upper curves in the chart would seem to indicate that he should always take the 3-year plan, but this depends upon the effective interest rate which he thinks is applicable to his surplus money. The effective interest rate for which the two plans are equally "good buys" may be determined by equating the annual costs of the two plans as follows:

$$\frac{2.5\,(1 - Kv^3)}{a_{\overline{3}|}} = \frac{4\,(1 - Kv^5)}{a_{\overline{5}|}}$$

which may be solved for *i* by successive approximation. The resulting figures appear on the chart as the lowest line. For non-participating policies the resulting interest rate is about 4¼%, decreasing for participating insurance until for a 50% dividend rate it is about 1½%. This indicates that for non-participating policies the 5-year plan is preferable if the policyholder believes that money is worth less than 4¼%, whereas the 3-year plan is better if money is worth more than 4¼%.

With today's low interest rates it appears that in most cases there is little to choose from between the two plans as far as the policyholder is concerned, since funds invested in defense bonds or savings banks earn only 2 to 3% interest. However, the companies might well introduce a larger differential in favor of the 5-year plan, inasmuch as greater economies should be achieved thereunder. Just as the effective interest rate on the 3-year plan makes it a favorable buy as compared to the 1-year plan, so from the policyholder's standpoint the 5-year plan should be more favorable than the 3-year one. It might well be contended that the 3-year plan is now on too favorable a basis and should be changed so as to allow somewhat less discount.

If it be assumed that the discount under the 5-year plan should be changed so as to produce interest returns to the insured comparable with those under the present 3-year plan, then such a policy might be sold for 3½ annual premiums[3] (or, expressed in

[3] These rounded values which produce roughly equal interest rates under the two plans were obtained by trial and error process.

another way, at a discount of 30% over the total of five annual premiums). The effective interest rate on this basis is 21.9% for a non-participating policy, decreasing to 8.1% for a participating policy with a 50% dividend rate, or slightly greater than the rates for the present 3-year plan (21.5% and 7.6% respectively). On the other hand, if the discount for the 3-year plan is to be reduced so as to be comparable with the present 5-year plan discount, the single premium might be 2.7 times the annual premium[3] (or in other words, a discount of 10% on three times the annual premium). The effective interest rate on this basis is 11.6% for a non-participating policy, decreasing to 4.0% for a participating policy with a 50% dividend rate, or slightly less than the interest rates of the present 5-year plan (12.6% and 4.5% respectively).

From the company's viewpoint, one procedure for determining the proper size for prepayment discounts is to make certain assumptions as to interest and savings in expense. Thus the policyholder should be given interest on his advanced funds and a portion of the savings effected. As a specific case, let it be assumed that the cost of collection of an annual premium (exclusive of commissions and taxes) is 10% of the average premium. Under a prepayment plan the cost of collection of the single premium can be assumed to be of the same absolute size. In other words, if the average annual premium is assumed to be $20, then the cost of collection is $2 per year. On the other hand, for prepayment the cost of collection for the average single premium is still assumed to be only $2 at the beginning of the period with no other expenses of collection assessed during the period. Where dividends are paid there are similar savings, since only one dividend is paid for the whole period rather than one each year as under the annual premium basis.

Interest rates of 3% and 6% have been used in the calculations. The former rate is that which should be granted to policyholders if it is decided to pay the current "market rate." The 6% rate might be given if it is desired to make the "investment" an attractive one for policyholders, with the thought that although the company cannot earn this amount on its excess funds, the small differential will be more than made up by improved persistency.

Using these interest and expense assumptions, the prepayment discounts may readily be calculated from the following formulas which equate the annual net costs (taking into account only collection expenses):

$$\frac{D\,(1-Kv^3)-.1}{a_{\overline{3}|}}=(1-Kv)-.1$$

$$\frac{D\,(1-Kv^5)-.1}{a_{\overline{5}|}}=(1-Kv)-.1$$

where D is the multiple of the annual premium which gives the single premium.

The results of the computations are shown in the following table for three selected dividend rates:

Dividend Rate	3-Year Prepayment		5-Year Prepayment	
	3% Interest	6% Interest	3% Interest	6% Interest
None	2.72	2.65	4.34	4.12
25%	2.61	2.51	4.08	3.77
50%	2.41	2.26	3.62	3.22

Under the assumptions made the current prepayment discount for the 3-year plan appears to be reasonably consistent, but that for the 5-year plan is not quite large enough. A single premium of about 3¾ annual premiums for the 5-year plan would be comparable with the single premium of 2½ times the annual premium for the 3-year plan.

This paper has shown that it is decidedly in the interest of the policyholder to take a prepayment plan when available. The analysis has also indicated that the discounts currently given for the two periods are not entirely equitable in comparison with each other. Perhaps the best course of action indicated is that the discount on the 5-year plan should be increased to 25% (as compared to the present 20%), while that on the 3-year plan should remain at the present 16⅔%. Of course, the two present discounts have become almost traditional so that practical considerations might in this case far outweigh any theoretical ones.

THE MULTI-SPLIT EXPERIENCE RATING PLAN IN NEW YORK

BY

ROGER A. JOHNSON, JR.

I. Introduction

The so-called Multi-Split Experience Rating Plan for workmen's compensation risks has been in effect in the State of New York since July 1, 1941. The chief purpose of this paper is not to outline the features of the plan itself, which was ably done in Mr. Smick's paper entitled "Merit Rating —The Proposed Multi-Split Experience Rating Plan" (P.C.A.S. XXVI, p. 84), but rather to show how it operates in this state and to discuss some of the problems presented by its introduction.

It is the general understanding that the plan, being new, is to be tried out for a year or so without material change. Then, such developments as appear desirable in the light of a year's experience with it are to be incorporated. Some suggestions will be made herein which it is felt will improve the operation of the plan in this state and might well be studied for consideration in other states.

Throughout this paper, no mention will be made of risks written wholly or partially on an ex-medical basis, since a slightly modified, but parallel, procedure is employed in rating such risks.

II. Elements of the Plan

(a) *Actual Losses*

As anyone who is familiar with this plan is aware, the division of actual losses into normal (called primary in this plan) and excess is on the multi-split principle.

The plan provided that the initial value, or point where discounting of losses begins, shall be such that 90% of the number of compensable cases shall have total losses (indemnity plus medical) below this point. Since New York experience shows that this point is approximately $1,000, New York falls into the largest, or \$500 group. Theoretically, this means that each loss is divided into sections of \$500, the primary value being equal to the full value of the first section, plus ⅔ of the second section, plus $^4/_9$ of the third section, and so on. The maximum primary loss is, therefore, \$1500, since that is the limit of the geometric series—

$$\$500\ (1 + \tfrac{2}{3} + (\tfrac{2}{3})^2 + \cdots\cdots).$$

In actual practice, it is desirable to have primary values easily obtainable from a table. This table has been prepared showing primary losses at \$10 intervals from \$500 to \$1500 with an actual loss group to which each of these primary losses corresponds. The primary loss is actually obtained by means of the formula

$$Ap = \frac{\$500\ (1 - r^n)}{1 - r} = \$1500\ [1 - (\tfrac{2}{3})^n] \text{ where } n = \frac{\text{Actual Loss}}{\$500}$$

which gives exact values only for even multiples of \$500. The values in between even multiples of \$500 are slightly higher than those produced by the theory, since the above formula produces an exponential curve, while the theory would produce a series of straight lines meeting the curve at each multiple of \$500. The formula method produces a smooth curve which is preferable, in actual practice, to the "straight lines" method.

(b) *Expected Losses*

Expected losses, on the other hand, are obtained by extending the actual payrolls for the three latest available policy years at expected loss rates. The split between primary and excess expected losses is determined by applying *"D"* ratios to the expected losses class by class.

(c) *"D" Ratios*

The statewide *"D"* ratios calculated in 1941 using experience for the first reporting of policy year 1938 and the second reporting of policy year 1937 were .274 for Serious, 1.197 for Non-Serious, and .303 for Medical. The average New York *"D"* ratio (called *"d"*) was .643. It is contemplated that three policy years will be used in calculating the 1942 *"D"* ratios.

The classification *"D"* ratios were obtained by weighting these statewide *"D"* ratios by the selected partial pure premiums on the new rate level for each classification.

(d) *Expected Loss Rates*

The expected loss rates were obtained for each classification by applying factors to the 1941 manual rate (less catastrophe loading). These factors vary by industry group and policy year, and are obtained by taking the reciprocal of the product of the following:

(1) Law amendment factor
(2) Loss development factor
(3) Rate level projection factor
(4) Security funds factor (1.012)
(5) Factor for expenses of the Labor Department
(1.045 on indemnity losses; averages 1.029)
(6) Expense loading (1.0 ÷ .605 = 1.653)

Since risk losses are used in rating without modification, it is desirable to have expected losses on a comparable basis. Therefore, it is necessary to unload the current manual rate by the above factors which have been used in its calculation.

Under this plan, for risks effective from July 1, 1941 to December 31, 1941, only policy year 1939-first reportings, policy year 1938-second reportings, and policy year 1937-third reportings may be used in rating. Expected loss rates for these three policy years were calculated and printed in Table II of the plan. However, for risks effective from January 1, 1942 to June 30, 1942, the following reports may be used: policy year 1940-first reportings, policy year 1939-second reportings, policy year 1938-third reportings, and also some policy year 1937-third reportings. (See Section III, Rule 2 of the New York Experience Rating Plan.) This necessitates calculation of expected loss rates for policy year 1940 and recalculation of policy year 1939 and policy year 1938 on the later report basis, with added cost for printing revised pages for the Plan. Unfortunately, although the same reportings (without policy year 1937) will be used in ratings from July 1, 1942 to December 31, 1942, the expected loss rates for these ratings will have to be based on the new 1942 manual rates effective July 1st, and therefore will have to be recalculated for that period. This means semi-annual calculation and printing of expected loss rates.

Several proposals have been advanced with a view toward simplifying expected loss rates in order to have only one annual printing.

One plan contemplates calculating expected loss rates on a "fiscal year" basis. This is done by averaging the development factors which are applied to each policy year for the various reportings. For instance, for ratings effective from July to December 1941, the second report of policy year 1938 is used. In calculating expected loss rates for policy year 1938, the development factor from second to ultimate must be removed. Likewise, for January to June 1942 ratings, the third report of policy year 1938 is used, and the development factor from third to ultimate must be taken out in calculating expected loss rates. On a "fiscal year" basis, we would use the average of these two development factors and use the same expected loss rate for the whole July-June year. Likewise for policy year 1939, the average of development factors (a) from first to ultimate and (b) from second to ultimate would be used in calculating a single expected loss rate for policy year 1939. While this plan is not yet in effect, the National Council Actuarial Committee has adopted the following procedure with regard to recalculation of expected loss rates for January 1942:

"When the average of the ratios of

$$(1)\ \frac{\text{Average development from 3rd to 4th}}{\text{Average development from 2nd to 4th}}$$

$$\text{and } (2)\ \frac{\text{Average development from 2nd to 4th}}{\text{Average development from 1st to 4th}}$$

is not over 1%, the expected loss rates for policy year 1940 will be the same as for policy year 1939 and it will not be necessary to recalculate the expected loss rates for the earlier years."

Another proposal suggests calculating a single expected loss rate for all policy years to be effective during the "fiscal" year. To make this calculation would mean averaging various factors for the following six reportings:

1937 — third report
1938 — second report, third report
1939 — first report, second report
1940 — first report

Law amendment factors would vary by policy year, and development factors would vary by report. In each case, the six appropriate factors could be selected and averaged. In the case of projection factors, it so happens that unity is used in three of the six due to lack of experience. The other factors for the earlier years may vary so widely by industry group as to cast doubt on their true worth. Three alternatives are presented: (a) to use 1.000 in all cases, (b) to use an average projection factor for each industry group, and (c) to use an average projection factor for all industry groups combined.

This "single loss rate" plan would not only eliminate semiannual recalculation, but would greatly simplify both the printing of Table II of the Experience Rating Plan and the work in connection with the actual rating itself. This plan was discussed by the Actuarial Committee of the Compensation Insurance Rating Board, who felt that as long as rate levels maintain an even keel and there are no substantial law amendments, it might be an advantageous one. It was felt that it might be advisable to have the data worked up each time for the Committee's review with complete refinement by policy year, and, when practicable, the factors may be averaged to permit the use of a single expected loss rate for all policy years for each classification.

A third plan suggests using the expected loss portion of the actual policy year manual rate for each policy year. The use or elimination of loss development factors might be a problem, but law amendment and projection factors could be omitted. This plan would probably work well for those classifications which show slight manual rate changes from year to year, but it is not likely to succeed where sudden changes occur. However, this method would enable a single expected loss rate for each policy year to be used without change, in three consecutive ratings. Each year, the expected loss rates for one additional policy year would have to be calculated.

(e) *1941 Rating Values—New York*

An Average Death and P.T. Value of $9000 was adopted. The plan provides that the Self-Rating point (S) shall be twenty times the Average Death and P.T. Value, which is $180,000. At that time, the plan provided that the Q point should be 1/10 of S.

However, the Actuarial Committee felt that a lower value would be more advisable and adopted \$12,000, which is 1/15th of \$180,000. Subsequent study has made even lower Q point desirable. (See Section IV below.)

K was determined by the formula $4\,m - 3\,ILd$, where

m =	maximum primary loss	=	\$1500
I =	initial value	=	500
L =	expected loss ratio	=	.581
d =	average "D" ratio	=	.643, and was rounded to \$5400.

$K_e = K + W\,(gS - K)$, where g is the maximum value of $\frac{E_e}{E}$, taken arbitrarily as .4. (See Section IV below.) Therefore, K_e is equal to $5400 + W\,(72000 - 5400) = 5400 + 66600\,W$.

Since $B = K_e\,(1-W)$, $B = (1-W)(5400 + 66600\,W)$. B was calculated for each of the 99 values of W from .01 to .99.

(f) *Credibility and Modification Formulae*

The National Council Actuarial Committee has adopted the following formulae for credibility under the Experience Rating Plan:

For Risks with Total Expected Losses:		*Above the Q Point*	*Below the Q Point*
Primary Credibility (Z_p)	=	$\dfrac{E}{E_p + B + WE_e}$	$\dfrac{E}{E_p + K}$
Excess Credibility (Z_e)	=	$W\,Z_p$	0
Average Credibility (Z)	=	$\dfrac{E_p + WE_e}{E_p + B + WE_e}$	$\dfrac{E_p}{E_p + K}$

That Z is an average of Z_p and Z_e, weighted by E_p and E_e respectively, can easily be shown.

The following formula gives the Experience Modification for risks of any size:

$$\text{Modification} = \frac{A_p\,Z_p + E_p\,(1-Z_p) + A_e\,Z_e + E_e\,(1-Z_e)}{E} \qquad \text{(I)}$$

Above the Q point, $Z_p = \dfrac{E}{E_p + B + WE_e}$, and $Z_e = WZ_p$, and by substitution in Formula I, the modification becomes $\frac{A_p + B + WA_e}{E_p + B + WE_e}$, which is the form used in actual rating.

For risks below the Q point, $Z_e = 0$, and Formula I reduces to

$$\text{Modification} = \frac{A_p Z_p + E_p (1 - Z_p) + E_e}{E} \qquad \text{(II)}$$

Now, since $Z_p = \frac{E}{E_p + K}$, Formula II can be reduced to

Modification $= \frac{A_p + K}{E_p + K}$, which is the form used in rating.

Some misunderstanding has arisen due to the *erroneous* assumption that for risks *below the Q point* the excess portion of both actual and expected losses is disregarded in rating. That this is *not* the case, can be seen from Formula II, which has been incorrectly shown at times without the E_e term in the numerator. What actually happens is that actual primary losses modified by Z_p are taken, plus expected primary losses modified by $(1 - Z_p)$, plus the entire expected excess losses, the total being compared with total expected losses to obtain the modification. Only the *actual* excess losses are disregarded.

III. Behavior of Credibility*

In any experience rating plan, credibility should be a function of the size of the risk in such a manner that it *gradually* increases from zero at a given point to unity at another point known as the self-rating point. Under this plan, the "primary" credibility and "average" credibility should be zero at size of risk zero and rise gradually (but not at the same rate) until they reach unity at the self-rating point (S). The "excess" credibility should be zero for all risks below the Q point and then rise gradually until it also reaches unity at S. Obviously, the general equations for these credibilities satisfy these conditions.

Unfortunately, it was found advisable in the practical application of the plan not to use formulae to determine W and B values for each risk above the Q point, but to limit W to 99 different values (from .01 to .99), each of which has a corresponding B

* See "Experience Rating Credibilities," by Francis S. Perryman (P.C.A.S. XXIV, p. 60).

value. Each of these pairs of values is then applied to a certain group of expected losses, the distance from Q to S being divided into 99 equal groups of expected losses. For purposes of simplification, this works out quite nicely. The value of E is looked up in a table from which W and B can be read off immediately and entered on the Rating form.

But, upon examining the results, we find that the credibilities produced by this tabular method behave quite strangely. Z_p, below the Q point, starts at zero and rises gradually (and smoothly) until it reaches a certain value at the Q point. Above the Q point, we must use tabular values for W and B. Immediately we introduce into the denominator a B which is enough greater than K to cause a sudden drop in our primary credibility. Z_p will increase gradually within each group, but will drop considerably in passing from one group to the next. In a test made using $D = .62$, it was found that Z_p gradually rose until it reached .935 at the Q point, but dropped to .889 at 12,001, rose again to .941 at the end of the "$W = .01$" group, and then dropped to .902 at the beginning of the next group. Obviously, a situation where Z_p changes by .013 between initial group points, but rises as much as .053 within one group is undesirable.

Z_e, which is the product of W and Z_p, behaves in quite a different manner. At the Q point, $Z_e = 0$. At 12,001, it suddenly becomes .009 and remains at .009 throughout the first group. When we pass from the first to the second group, Z_e jumps from .009 to .018. Here we have no overlapping as in Z_p, but rather discontinuity, which is perhaps just as undesirable.

Z, the average credibility, which is the weighted average of Z_p and Z_e, combines the bad features of both. For small values of W, Z overlaps from group to group, but for high values of W, it becomes discontinuous.

It would perhaps be permissible and possibly advantageous to overlook the strange behaviour of credibility under this plan, especially in view of the fact that credibility does not appear on the rating blank per se, but rather as a mysterious unknown quantity hidden behind the scenes. Over a period of time these variations would average out so that the over all results would be satisfactory. Unfortunately, that this fluctuation will give unfavorable results is apparent from the following example: Let us take a risk with expected losses slightly below either the Q point or one of the other group limits. The actual losses are such that a credit is produced by the Experience Rating Plan. Now, if we increase the expected losses by an amount which is great enough to push the risk over into the lower part of the next higher group, we should expect the risk (with the same actual losses and greater expected losses) to produce a lower modification. This, however, is not the case. The effect of moving into the next group, with the corresponding drɔp in primary credibility, causes the risk to produce a higher modification. This is because less weight is given to the good experience and a smaller credit results.

It frequently happens that a risk will have a rerating on the basis of a final audit which produced slightly higher payrolls. Imagine the assured's astonishment to find that increased expected losses can produce a higher modification with the same actual losses. It is admitted that this situation is not unique to this plan, and was known to happen under certain conditions in the old Experience Rating Plan, but this hardly seems to justify it if it can be avoided.

This strange situation might be unavoidable if it were true that the formulae for W and B are too complicated for simplification, and could only be feasibly obtained from tables. It is the writer's opinion that this is not the case and he proposes the following method of obtaining W and B values for each individual risk above the Q point:

(1) Determine W to four decimal places from the following formula:

$$W = \frac{E - Q}{S - Q}$$

This is a single operation. Q and $S - Q$ are constants, and $E - Q$ can be obtained at sight.

(2) Compute B from the following formula:

$$B = (1 - W)\ [K + (gS - K)\ W].$$

This consists of two operations. $(gS - K)$ is a constant. Multiply $(gS - K)$ by W and add K. Then multiply this result by the complement of W to obtain B.

By using these values of B and W in the experience rating forms, more consistent and reliable results will be obtained. It is the writer's opinion that the additional work entailed will be negligible, since (a) the above operations will replace the work performed in looking up B and W in the tables, and (b) only one rating in fifteen is above the Q point.

IV. Primary Credibility Greater than Unity

It was discovered that certain risks with low "D" ratios could produce a primary credibility greater than unity for certain sizes of expected losses. The absurdity of this situation can be shown by the following example: The general formula for the risk experience modification is:

$$\text{Modification} = \frac{A_p Z_p + E_p(1 - Z_p) + A_e Z_e + E_e(1 - Z_e)}{E}$$

If we consider that the numerator of this expression consists of two parts—a weighted average of A_p and E_p, and a weighted average of A_e and E_e, we see that in the case where Z_p exceeds unity, the left hand term will not lie between A_p and E_p (as a good weighted average should) but will be greater or less than both values as A_p is greater or less than E_p. Obviously, this will give distorted results in actual practice.

$$Z_p = \frac{E}{E_p + 5400} = \frac{E_p + E_e}{E_p + 5400} \text{ for risks below the } Q \text{ point.}$$

This obviously is greater than unity when E_e is greater than 5400. This situation is not consistent with the fundamentals of the plan, and should be remedied.

The K value of 5400 is determined by m, I, L and d. Of these, only "d" may vary, but even if we set $d = .000$, K would equal 6000 and Z_p could still be greater than unity under certain conditions. Therefore, it seems that the fault must lie elsewhere.

The Q value of 12,000 apparently is too high. If the Q point were lower, Z_p could not reach unity for risks below it, and we would use the other formula for risks above it. The National Council Actuarial Committee has recommended that Q be determined by the ratio of K/d. In New York, this would be $\frac{5400}{.643}$

or 8398, which would be rounded to 8500. This seems to be a much better value, since Z_p could only be greater than unity below the Q point for $D = .36$ or less. (See below.)

For risks above the Q point, it would still be possible to find Z_p greater than unity, even with the lower Q point. Since Z_p is dependent to a certain extent on B, it would appear that we can eliminate this trouble by increasing B. The formula for B is

$$B = (1 - W)\, K_e = (1 - W)\, [K + W\, (gS + K)]$$

"g" is defined as the maximum value of $\frac{E_e}{E}$ and was taken arbitrarily at .4 on the recommendation of the National Council Actuarial Committee. A study of the Experience Rating Plan Values in Table II shows that this value is much too low for New York. Of the 668 classifications for which "D" ratios are shown, 287 (or 43%) are less than .60 which corresponds to $g = .4$. Of these 287, only 17 are less than .47, these 17 comprising the nine "explosives" classes, four "aircraft" classes and four others. The writer would recommend disregarding the "D" ratios which are smaller than .47 and adopting .53 as the correct value of "g" for New York. Then B becomes

$$(1 - W)\, (5400 + 90000\, W).$$

Tests show that Z_p will not exceed unity using these B values under the proposed "non-grouping" method outlined in Section III, although it is quite likely that Z_p would still fluctuate enough under the present "grouping" plan to exceed unity at some points under certain conditions.

V. Experience Rating Statistics

Certain data to be used in rate making, such as average credibility and average off-balance by industry group, are readily obtainable from the experience rating statistics.

One writer, in a discussion of Mr. Smick's paper, pointed out the necessity of obtaining the average off-balance of the experience rating plan from these statistics and worked out some unnecessarily complicated formulae for doing so, using the wrong weighting process. Actually, it is a comparatively simple matter. The risk modification and risk average credibility are weighted by the total expected losses for the risk and punched. Then the average modification and average credibility can be obtained for any group of risks by the formula:

$$\text{Average modification} = \frac{\Sigma\, E \times \text{Mod.}}{\Sigma\, E}$$

$$\text{Average credibility} = \frac{\Sigma\, E \times Z}{\Sigma\, E}$$

Not necessary from a rate making standpoint, but quite useful from a practical point of view is the average primary credibility. The primary credibility for each risk is weighted by the primary expected losses and punched. We can get the average primary credibility for any group of risks from:

$$\text{Primary credibility} = \frac{\Sigma\, E_p \times Z_p}{\Sigma\, E_p}$$

Three additional calculations are necessary to prepare the experience rating sheet for punching. The product of total expected losses and modification is obvious. For risks below the Q point, it is true that

$$E \times Z = E_p \times Z_p = E_p \times \frac{E}{E_p + K} = E \times \frac{E_p}{E_p + K}$$

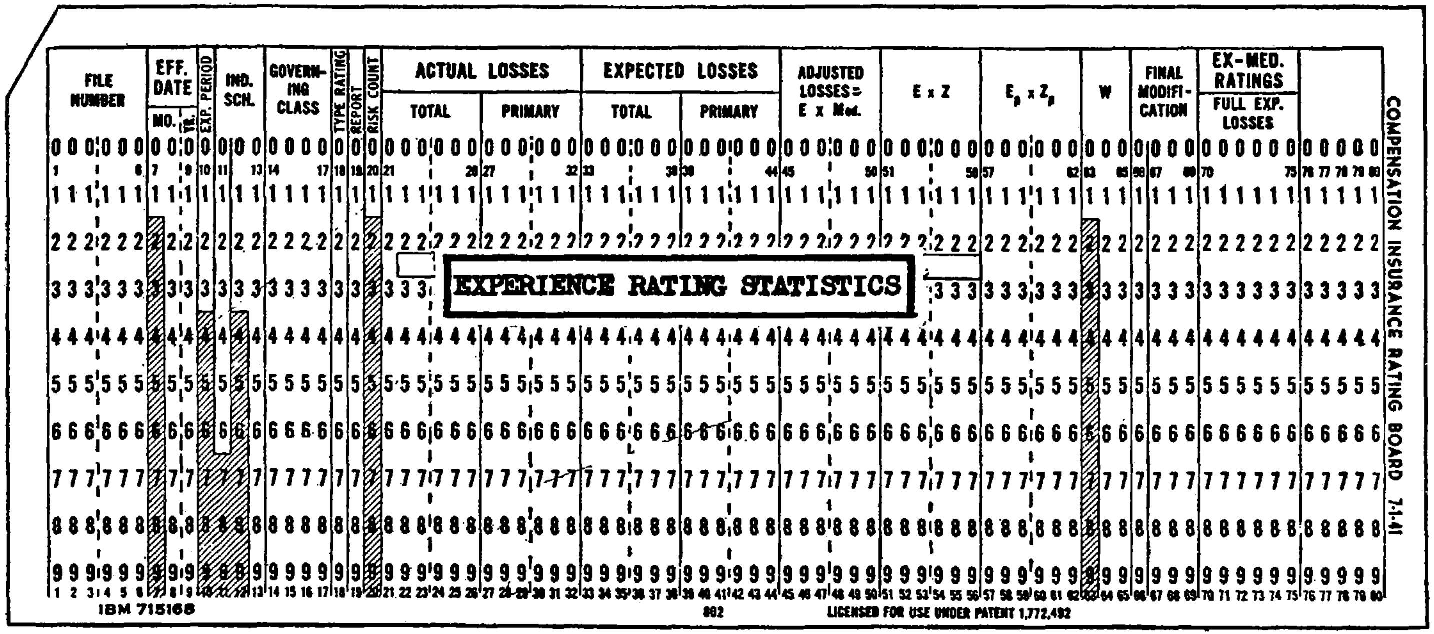
A table of values of $\frac{E_p}{E_p + K}$ has been prepared, so that all that is necessary is to look up E_p in the table and then multiply the corresponding value of $\frac{E_p}{E_p + K}$ by E. This value is punched for both $E \times Z$ and $E_p \times Z_p$.

For risks above the Q point, separate calculations of $E \times Z$ and $E_p \times Z_p$ are necessary. Since E_p, WE_e, and $E_p + B + WE_e$ are given in the lower left hand corner of the rating form, it is a fairly easy matter to compute

$$\frac{E_p + WE_e}{E_p + B + WE_e} \quad \text{and} \quad \frac{E_p}{E_p + B + WE_e}$$

and then multiply each of these values by E to obtain the necessary values for punching.

The punch card on p. 27 is used for compiling these statistics, any information which does not appear on the experience rating form being coded in before punching.



FILE NUMBER

EFF. DATE — MO. YR.

EXP. PERIOD

IND. SCH.

GOVERNING CLASS

TYPE RATING

REPORT

RISK COUNT

ACTUAL LOSSES — TOTAL — PRIMARY

EXPECTED LOSSES — TOTAL — PRIMARY

ADJUSTED LOSSES = E x Mod.

E x Z

$E_p \times Z_p$

W

FINAL MODIFICATION

EX-MED. RATINGS — FULL EXP. LOSSES

EXPERIENCE RATING STATISTICS

COMPENSATION INSURANCE RATING BOARD 7-1-41

IBM 715168

882

LICENSED FOR USE UNDER PATENT 1,772,492

Table I shows the statistics for certain July 1941 ratings. This somewhat detailed tabulation is produced here more from the point of view of showing what information is available than from any practical standpoint. It should be kept in mind that Industry Schedule, Industry Group, and Governing Class are shown on the punch card, so that data for any specific group of risks is readily available.

Each individual *"W"* value has been shown in order to follow the trend of the three credibility values shown in columns 14, 15, and 16.

VI. Calculation of "D" Ratios

In the calculation of statutory-medical coverage *"D"* ratios, it is necessary to have distributions of losses by size of total loss for major permanent partial, minor permanent partial, temporary, and non-compensable medical cases. Since total losses are not shown on the experience card, and consequently are not punched, somewhat of a problem is presented. Revision of the Unit Statistical Plan has been suggested, to have indemnity and total losses reported for each claim, medical being obtained by subtraction, when needed. Since this is the only place where total losses are more desirable than medical, this suggestion seems impracticable. In Schedule *"Z"* and practically all other cases, it is preferable to have indemnity and medical losses shown; at least, as rate making is currently practiced. It would be impossible to make any study of medical costs if medical losses were not shown on the cards.

This problem has been handled in New York in the following manner: The punch cards for which total losses are needed are picked out, as follows:

> Only major, minor and temporary cases; not ex-medical coverage; whose total losses could exceed $500. (It is possible by sorting on the hundreds column of both indemnity and medical to eliminate a great majority of the cards whose total loss is less than $500.) These cards are then cross-footed. That is, indemnity and medical are added together and punched in a vacant field of the card by an automatic machine. With the cards in this condition, it is a simple matter to obtain the desired distributions by size of total loss.

These cards are also utilized in calculating the Average Death & P.T. Value, since it is necessary to reflect the extent to which this value acts as a limiting value for cases other than Death or Permanent Total.

VII. Actual Savings Under the New Plan

It is estimated that the amount of time saved in carrying out actual rating procedure is between 25 and 30 percent. As the data in the 1940 ratings is on the old basis it is now necessary to obtain all information for the 1941 ratings directly from the experience cards, but an even greater saving in time can be expected a year from now, when the raters will have a previous rating made under the new plan to follow.

Moreover, it is estimated that there is a saving of one-quarter in number of rating sheets used under the new plan. A majority of the small risks were "one-sheet" risks under the old plan and are still "one-sheet" risks under the new. There is a considerable saving, however, in the number of sheets used on larger risks. Where formerly it was necessary to list individually each medical loss greater than $100, it is now necessary to list only cases whose total losses exceed $500. At the same time, while the payrolls for each separate policy period had to be listed under the old plan, they are now summarized by classification and policy year. One risk, in particular, which used fifty sheets in the 1940 rating was rated under the new plan on only three sheets.

VIII. Test of Proposed Changes in the Plan—Table II

Two proposals have been offered in this paper which it is believed will enable the plan to work better in the State of New York. In Section III, it was suggested that the W and B values be calculated individually for each risk above the Q point, and in Section IV, dropping the Q point to 8500 and using "g" $= .53$ were suggested.

In order to determine the effect of making these changes in the plan, the 136 risks with expected losses above the Q point shown in Table I were recalculated in two ways: first eliminating the grouping method and calculating W and B for each risk (Proposed Method I), and second, using this method of calculating W and B, but dropping the Q point to 8500 and using "g" $= .53$ (Proposed Method II). In the latter test, the 58 risks between 8500 and 12,000 expected losses were also recalculated, since they would be affected by this proposal.

These risks are listed in Table II by size of expected losses, showing the experience modification and primary credibility for each risk under the present plan and each of the proposals. A summary shows the overall effect of making these changes.

Proposed Method I. This method, which eliminates the tabular values of B and W, has the effect of smoothing out the values of Z_p. However, since Z_p is dependent upon both E and the risk D ratio, this result is not apparent upon inspection.

If we were to calculate Z_p for each of these risks using a constant D ratio, the result would be a smooth curve, with Z_p increasing as E increases. The variations of the Z_p's from a smooth curve which are caused by variations in the D ratios which are actually used can be expressed by the following formula, where Z_p is calculated for a given size of risk using a D ratio of "D", and Z'_p is calculated for the same risk size using a D ratio of "$D + x$":

$$\frac{1}{Z'_p} - \frac{1}{Z_p} = (1 - W)\,x \quad \text{(See footnote for derivation)}$$

This inverse relationship can be readily seen in Table I, where high D ratios produce low credibilities, and low D ratios produce high credibilities which sometimes even exceed unity.

The writer does not recommend this proposal in itself, but only as it is combined with the changing of values in Proposed Method II. The test was made separately, however, to determine the individual effect of each of the proposals.

NOTE:

Derivation: $Z_p = \dfrac{E}{E_p + B + WE_e}$; $E_p = D \cdot E$; $E_e = (1 - D)\,E$

$$\frac{1}{Z_p} = \frac{D \cdot E + B + WE\,(1 - D)}{E}$$

$$\frac{1}{Z'_p} = \frac{(D + x)\,E + B + WE\,(1 - D - x)}{E}$$

$$\frac{1}{Z'_p} - \frac{1}{Z_p} = \frac{xE - WEx}{E} = x\,(1 - W).$$

Proposed Method II. We can see by inspection of Table II, that there are no longer any credibilities greater than unity, which was one of the desired results of using this method.

This method has the general effect of reducing the primary credibility and as a result the experience modifications are brought closer to unity. The overall change in average modification for risks of all sizes is only .003, however, from .959 to .962.

TABLE I—PART I
WORKMEN'S COMPENSATION—NEW YORK
Preliminary Study of Experience Ratings for July 1941 for Risks Written on a Statutory Medical Coverage Basis

				Actual Losses			Expected Losses		
Size of Expected Losses	"W"	"B"	No. of Risks	Total "A"	Primary "A_p"	Ratio (6)+(5)	Total "E"	Primary "E_p"	Average "D" Ratio (9)+(8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
0— 999	.00	5,400	249	166,761	117,057	.702	222,212	137,764	.620
1,000— 1,999	.00	5,400	788	1,136,916	699,928	.616	1,110,521	686,071	.618
2,000— 2,999	.00	5,400	308	658,238	442,737	.673	757,085	468,471	.619
3,000— 3,999	.00	5,400	145	407,155	278,488	.684	506,987	310,623	.613
4,000— 4,999	.00	5,400	85	353,616	234,410	.663	380,956	234,994	.617
5,000— 5,999	.00	5,400	81	420,694	263,245	.626	445,730	274,470	.616
6,000— 6,999	.00	5,400	48	307,603	191,843	.624	310,134	190,897	.616
7,000— 7,999	.00	5,400	36	218,365	154,199	.706	270,247	164,284	.608
8,000— 8,999	.00	5,400	25	134,260	95,645	.712	212,222	130,586	.615
9,000— 9,999	.00	5,400	18	176,139	111,143	.631	170,323	101,957	.599
10,000— 10,999	.00	5,400	13	112,044	79,167	.707	135,793	84,875	.625
11,000— 12,000	.00	5,400	14	121,314	86,595	.714	160,827	98,818	.614
12,001— 13,697	.01	6,005	18	207,831	122,483	.589	230,178	144,329	.627
13,698— 15,394	.02	6,597	14	199,082	109,941	.552	202,598	125,004	.617
15,395— 17,091	.03	7,176	12	178,786	108,698	.608	191,136	114,846	.601
17,092— 18,788	.04	7,741	7	101,253	70,004	.692	125,267	77,821	.621
18,789— 20,485	.05	8,294	7	127,649	77,514	.607	137,423	85,440	.622
20,486— 22,182	.06	8,832	11	212,850	118,867	.558	233,758	141,411	.605
22,183— 23,879	.07	9,358	7	146,183	102,380	.700	159,800	104,890	.656
23,880— 25,576	.08	9,870	10	260,707	169,968	.652	248,183	153,187	.617
25,577— 27,273	.09	10,369	4	115,056	89,061	.774	104,464	63,863	.611
27,274— 28,970	.10	10,854	3	101,263	61,099	.603	85,784	52,670	.614
28,971— 30,667	.11	11,326	3	124,919	82,016	.657	87,964	54,574	.620
30,668— 32,364	.12	11,785	2	55,354	34,258	.619	63,526	37,288	.587
32,365— 34,061	.13	12,230	1	34,659	31,214	.901	33,930	22,382	.660
34,062— 35,758	.14	12,663	7	195,651	124,251	.635	244,364	152,992	.626
35,759— 37,455	.15	13,082	3	118,499	59,301	.500	109,387	62,841	.574
37,456— 39,152	.16	13,487	1	32,606	20,949	.642	38,698	25,352	.655
42,546— 44,242	.19	14,624	3	123,991	79,055	.638	129,772	82,936	.639
45,940— 47,636	.21	15,315	3	135,269	83,483	.617	140,268	89,563	.639
47,637— 49,333	.22	15,641	2	37,676	34,075	.904	97,979	57,277	.585
49,334— 51,030	.23	15,953	1	35,775	17,458	.488	50,048	32,531	.650
51,031— 52,727	.24	16,252	1	20,353	15,167	.745	51,483	31,117	.604
52,728— 54,424	.25	16,538	1	32,687	22,592	.691	54,040	32,229	.596
54,425— 56,121	.26	16,810	1	52,602	34,103	.648	54,792	36,690	.670
56,122— 57,818	.27	17,069	2	105,004	68,570	.653	113,405	69,793	.615
62,910— 64,606	.31	17,972	1	68,080	46,676	.686	64,396	39,252	.610
64,607— 66,303	.32	18,164	1	55,166	32,484	.589	65,399	39,716	.607
74,789— 76,485	.38	19,039	1	74,406	51,940	.698	75,072	45,209	.602
76,486— 78,182	.39	19,138	1	73,580	37,825	.514	77,951	46,370	.595
83,274— 84,970	.43	19,402	1	52,600	42,925	.816	84,651	51,368	.607
95,153— 96,849	.50	19,350	1	75,165	39,820	.530	95,432	59,959	.628
103,637—105,333	.55	18,914	1	105,437	53,409	.507	104,801	68,465	.653
110,425—112,121	.59	18,325	1	152,286	71,145	.467	110,846	70,916	.640
147,759—149,455	.81	11,276	2	269,723	167,815	.622	298,035	197,698	.663
156,243—157,939	.86	8,775	1	104,389	49,554	.475	157,316	94,851	.603
180,000 & Over	1.00	—	1	218,952	152,909	.698	276,094	183,941	.666
0— 12,000	—	—	1,810	4,213,105	2,754,457	.654	4,683,037	2,883,810	.616
12,000 & Over	—	—	136	4,005,489	2,483,009	.620	4,398,240	2,748,771	.625
TOTAL	—	—	1,946	8,218,594	5,237,466	.637	9,081,277	5,632,581	.620

TABLE I—PART II
WORKMEN'S COMPENSATION—NEW YORK
Preliminary Study of Experience Ratings for July 1941 for Risks Written on a Statutory Medical Coverage Basis

				Credibility				
Size of Expected Losses	"E x Z"	"E_p x Z_p"	"E_e x Z_e" (11) − (12)	Primary "Z_p" (12) ÷ (9)	Excess "Z_e" $\frac{(13)}{(8)-(9)}$	Average "Z" (11) ÷ (8)	"E x Mod."	Average Modification (17) ÷ (8)
(1)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
0— 999	20,774	20,774	—	.151	.000	.093	218,932	.985
1,000— 1,999	158,844	158,844	—	.232	.000	.143	1,111,879	1.001
2,000— 2,999	167,856	167,856	—	.358	.000	.222	748,462	.989
3,000— 3,999	144,397	144,397	—	.465	.000	.285	491,538	.970
4,000— 4,999	129,120	129,120	—	.549	.000	.339	380,801	1.000
5,000— 5,999	171,841	171,841	—	.626	.000	.386	438,965	.985
6,000— 6,999	131,491	131,491	—	.689	.000	.424	311,057	1.003
7,000— 7,999	123,654	123,654	—	.753	.000	.458	263,101	.974
8,000— 8,999	104,271	104,271	—	.798	.000	.491	184,365	.869
9,000— 9,999	87,104	87,104	—	.854	.000	.511	178,475	1.048
10,000— 10,999	74,295	74,295	—	.875	.000	.547	130,636	.962
11,000— 12,000	91,127	91,127	—	.922	.000	.567	149,797	.931
12,001— 13,697	131,768	131,009	759	.908	.009	.572	211,061	.917
13,698— 15,394	116,931	115,494	1,437	.924	.019	.577	188,516	.930
15,395— 17,091	109,994	107,826	2,168	.939	.028	.575	184,553	.966
17,092— 18,788	74,530	72,760	1,770	.935	.037	.595	116,943	.934
18,789— 20,485	82,714	80,237	2,477	.939	.048	.602	129,829	.945
20,486— 22,182	140,623	135,310	5,313	.957	.058	.602	212,425	.909
22,183— 23,879	99,626	96,088	3,538	.916	.064	.623	156,400	.979
23,880— 25,576	153,724	146,475	7,249	.956	.076	.619	263,894	1.063
25,577— 27,273	64,718	61,220	3,498	.959	.086	.620	127,498	1,220
27,274— 28,970	54,218	51,015	3,203	.969	.097	.632	94,405	1.100
28,971— 30,667	55,506	51,988	3,518	.953	.105	.631	115,320	1.311
30,668— 32,364	40,149	37,004	3,145	.992	.120	.632	59,862	.942
32,365— 34,061	22,428	21,037	1,391	.940	.120	.661	41,225	1.215
34,062— 35,758	158,811	146,276	12,535	.956	.137	.650	213,920	.875
35,759— 37,455	69,872	62,766	7,106	.999	.153	.639	107,777	.985
37,456— 39,152	25,966	23,954	2,012	.945	.151	.671	34,286	.886
42,546— 44,242	87,814	79,252	8,562	.956	.183	.677	125,388	.966
45,940— 47,636	96,129	85,884	10,245	.959	.202	.685	136,052	.970
47,637— 49,333	66,529	57,516	9,013	1.004	.221	.679	66,479	.679
49,334— 51,030	34,833	30,980	3,853	.952	.220	.696	35,834	.716
51,031— 52,727	35,472	30,632	4,840	.984	.238	.689	32,177	.625
52,728— 54,424	37,558	32,100	5,458	.996	.250	.695	41,503	.768
54,425— 56,121	38,957	34,519	4,438	.941	.245	.711	52,436	.957
56,122— 57,818	79,950	68,382	11,568	.980	.265	.705	110,079	.971
62,910— 64,606	46,623	38,895	7,728	.991	.307	.724	70,578	1.096
64,607— 66,303	47,414	39,305	8,109	.990	.316	.725	57,290	.876
74,789— 76,485	56,154	44,893	11,261	.993	.377	.748	78,976	1.052
76,486— 78,182	58,775	46,459	12,316	1.002	.390	.754	71,013	.911
83,274— 84,970	65,351	51,129	14,222	.995	.415	.772	66,112	.781
95,153— 96,849	76,441	58,977	17,464	.984	.492	.801	75,582	.792
103,637—105,333	86,356	66,863	19,493	.977	.536	.824	98,513	.940
110,425—112,121	92,889	69,722	23,167	.983	.580	.838	135,010	1.218
147,759—149,455	275,733	195,442	80,311	.989	.800	.925	269,811	.905
156,243—157,939	148,506	94,862	53,644	1.000	.859	.944	105,402	.670
180,000 & Over	276,094	183,941	92,153	1.000	1.000	1.000	218,952	.793
0— 12,000	1,404,774	1,404,774	—	.487	.000	.300	4,608,008	.984
12,000 & Over	3,109,156	2,650,212	458,964	.964	.278	.707	4,105,101	.933
TOTAL	4,513,930	4,054,986	458,964	.720	.133	.497	8,713,109	.959

TABLE II

WORKMEN'S COMPENSATION—NEW YORK

Preliminary Study of Experience Ratings for July 1941 for Risks Written on a Statutory Medical Coverage Basis

Amount of Expected Losses	Present Method		Proposed Method I		Proposed Method II		Amount of Expected Losses	Present Method		Proposed Method I		Proposed Method II	
	Modif.	Z_p	Modif.	Z_p	Modif.	Z_p		Modif.	Z_p	Modif.	Z_p	Modif.	Z_p
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8,514	.936	.843	Same as Present Method up to $12,000		.936	.842	11,534	.675	.904			.705	.806
8,622	.663	.811			.665	.807	11,612	1.073	.911			1.061	.810
8,718	.787	.777			.789	.770	11,677	1.111	.934			1.099	.827
8,718	1.033	.856			1.032	.846	11,688	1.039	.884			1.031	.787
8,758	.846	.782			.848	.773	11,812	1.191	.985			1.167	.863
8,773	.783	.781			.785	.772	11,843	1.214	.942			1.199	.829
8,808	.696	.860			.700	.847	11,956	.817	.933			.834	.821
8,831	.854	.802			.856	.790	11,961	.716	.956			.745	.837
8,841	.839	.770			.841	.758	12,059	.712	.781	.701	.813	.731	.727
8,844	.945	.819			.945	.807	12,291	.698	.895	.688	.931	.721	.818
8,872	.781	.806			.785	.792	12,319	1.388	.908	1.404	.945	1.354	.829
8,897	1.140	.824			1.137	.810	12,382	1.202	.869	1.204	.901	1.192	.796
8,907	1.079	.823			1.079	.806	12,449	.623	.910	.612	.942	.653	.828
9,039	1.938	.847			1.916	.827	12,512	.797	.878	.792	.907	.812	.800
9,066	.922	.922			.925	.895	12,515	1.071	.902	1.068	.932	1.072	.820
9,096	.812	.813			.816	.791	12,588	.802	.908	.798	.937	.817	.824
9,165	1.429	.809			1.416	.785	12,598	.654	.911	.645	.939	.682	.825
9,171	.750	.863			.756	.836	12,650	1.109	.886	1.111	.912	1.103	.805
9,192	.735	.804			.743	.780	12,698	.770	.928	.764	.954	.792	.836
9,275	.818	.868			.823	.838	12,998	.933	.943	.932	.962	.941	.843
9,319	.712	.783			.722	.756	13,142	.811	.911	.809	.925	.829	.815
9,484	1.260	.849			1.247	.812	13,189	.583	.897	.578	.908	.622	.803
9,569	.964	.866			.964	.826	13,267	1.084	.925	1.085	.935	1.072	.823
9,574	1.352	.898			1.338	.853	13,300	1.090	.899	1.090	.908	1.091	.803
9,600	.955	.877			.955	.834	13,526	1.239	1.017	1.240	1.021	1.206	.888
9,647	1.178	.863			1.170	.820	13,695	.915	1.016	.915	1.016	.928	.885
9,649	.922	.833			.931	.794	13,733	.909	.794	.904	.823	.917	.737
9,765	1.208	.868			1.195	.821	13,736	.560	.983	.544	1.031	.595	.896
9,836	1.096	.902			1.094	.848	13,778	1.075	.893	1.075	.929	1.073	.820
9,895	.922	.882			.924	.829	13,940	1.155	.955	1.155	.992	1.148	.868
9,981	.903	.867			.906	.814	13,995	.655	.882	.642	.912	.687	.807
10,032	1.028	.847			1.026	.796	14,160	.895	.992	.892	.911	.905	.806
10,142	1.192	.863			1.181	.806	14,415	.904	.939	.904	.963	.909	.846
10,148	1.083	.841			1.079	.786	14,551	.989	.927	.988	.945	.992	.833
10,256	1.373	.871			1.347	.809	14,862	.946	.964	.947	.975	.947	.856
10,322	1.000	.924			.997	.852	14,921	1.179	.941	1.180	.952	1.161	.839
10,333	.936	.856			.939	.794	15,029	1.112	.906	1.111	.913	1.108	.809
10,436	.753	.867			.775	.801	15,036	1.143	.932	1.144	.938	1.124	.829
10,505	1.015	.891			1.014	.819	15,209	.729	1.009	.728	1.013	.760	.885
10,589	.686	.884			.709	.812	15,233	.757	.974	.756	.977	.787	.858
10,704	1.032	.897			1.026	.820	15,421	1.145	.920	1.153	.956	1.130	.843
10,727	.938	.865			.940	.793	15,436	1.197	.923	1.207	.959	1.178	.845
10,742	.753	.906			.771	.826	15,485	1.175	.930	1.182	.965	1.159	.849
10,857	.754	.875			.772	.799	15,510	1.142	.931	1.145	.965	1.130	.850
11,014	.679	.903			.711	.817	15,579	.945	.969	.945	1.005	.948	.880
11,024	.710	.910			.733	.822	15,677	1.015	.960	1.017	.991	1.011	.870
11,079	.671	.920			.699	.829	15,778	.834	.899	.829	.923	.850	.818
11,177	.894	.900			.901	.810	16,027	.729	.935	.723	.957	.757	.844
11,203	1.235	.916			1.209	.823	16,136	.823	.938	.819	.957	.842	.845
11,247	.986	.919			.984	.824	16,418	.981	.868	.981	.878	.980	.784

TABLE II—*Continued*

WORKMEN'S COMPENSATION—NEW YORK

PRELIMINARY STUDY OF EXPERIENCE RATINGS FOR JULY 1941 FOR RISKS WRITTEN ON A STATUTORY MEDICAL COVERAGE BASIS

Amount of Expected Losses	Present Method		Proposed Method I		Proposed Method II	
	Modif.	Z_p	Modif.	Z_p	Modif.	Z_p
(1)	(2)	(3)	(4)	(5)	(6)	(7)
16,787	.928	.951	.927	.956	.943	.845
16,882	.715	1.081	.714	1.085	.751	.942
17,153	1.011	.928	1.013	.958	1.009	.847
17,304	.841	.947	.839	.977	.852	.861
17,950	1.109	.928	1.136	.942	1.119	.835
18,008	.969	.902	.967	.914	.976	.817
18,065	1.144	.955	1.147	.968	1.125	.868
18,321	.829	.971	.827	.980	.846	.865
18,466	.641	.919	.640	.922	.675	.821
18,936	1.136	.943	1.138	.969	1.126	.857
19,020	.821	.899	.818	.922	.835	.821
19,445	1.172	.918	1.175	.934	1.155	.831
19,887	1.206	1.000+	1.210	1.011	1.178	.890
19,940	.911	.904	.909	.911	.925	.814
20,027	.766	.913	.764	.918	.795	.819
20,168	.616	1.016	.615	1.021	.653	.898
20,548	.819	.930	.817	.955	.833	.848
20,550	.749	.993	.742	1.021	.773	.899
20,918	.866	.954	.866	.973	.876	.863
20,957	.794	.939	.790	.957	.814	.851
21,237	.739	.910	.737	.922	.761	.823
21,248	.664	.965	.659	.978	.697	.867
21,313	1.455	.946	1.459	.959	1.417	.852
21,540	1.101	1.030	1.103	1.041	1.086	.915
21,569	1.062	.922	1.063	.929	1.054	.829
21,718	.681	.969	.679	.974	.713	.865
22,160	1.048	.987	1.048	.985	1.059	.873
22,390	.742	.918	.739	.937	.762	.836
22,592	1.047	.934	1.047	.951	1.043	.847
22,753	.961	.919	.960	.933	.966	.834
22,765	1.003	.916	1.004	.929	1.000	.830
22,921	1.185	.840	1.186	.849	1.173	.767
23,072	.841	.939	.840	.949	.854	.846
23,307	1.067	.963	1.069	.969	1.056	.862
24,029	.959	.951	.959	.970	.961	.863
24,320	.601	.964	.597	.981	.636	.872
24,474	1.492	.955	1.495	.968	1.452	.869
24,672	1.028	.964	1.030	.974	1.024	.867
24,801	1.267	.931	1.268	.939	1.245	.840
24,860	.909	.928	.909	.935	.914	.837
25,098	1.189	.988	1.190	.994	1.165	.883
25,206	1.007	.947	1.008	.949	1.004	.848
25,359	1.113	.966	1.113	.966	1.106	.862
25,364	1.060	.973	1.061	.975	1.053	.868
25,875	1.302	.948	1.308	.963	1.274	.860
26,012	1.163	.982	1.167	.997	1.145	.886
26,126	.666	.945	.664	.958	.694	.856
26,451	1.745	.960	1.751	.968	1.671	.864
28,227	.728	.968	.728	.976	.751	.872
28,728	1.472	.950	1.472	.951	1.436	.853
28,829	1.095	.988	1.095	.988	1.081	.882
28,978	1.024	.912	1.025	.926	1.022	.833
29,141	1.071	.994	1.071	1.011	1.065	.900
29,845	1.824	.958	1.895	.966	1.746	.865
31,558	1.048	.988	1.049	.995	1.043	.890
31,968	.838	.996	.838	.999	.853	.893
33,930	1.215	.940	1.215	.939	1.190	.847
34,230	.857	.929	.857	.940	.868	.848
34,414	1.090	.964	1.091	.974	1.082	.875
34,736	.929	.942	.929	.949	.935	.855
35,051	.828	1.093	.826	1.100	.847	.974
35,209	.733	1.000+	.732	1.004	.762	.900
35,354	.809	.856	.809	.857	.824	.782
35,370	.887	.970	.887	.971	.894	.874
36,081	.897	.934	.898	.942	.905	.851
36,121	.943	1.091	.942	1.104	.951	.978
37,185	1.112	.997	1.112	.997	1.106	.896
38,698	.886	.945	.886	.946	.896	.856
43,111	.901	.943	.901	.948	.909	.861
43,112	.768	.979	.768	.986	.788	.891
43,549	1.227	.946	1.228	.949	1.208	.862
46,088	.638	.940	.637	.947	.666	.862
47,075	1.514	.997	1.514	.998	1.473	.904
47,105	.751	.943	.741	.932	.770	.861
48,814	.677	1.013	.695	1.043	.702	.919
49,165	.680	.995	.677	.990	.704	.903
50,048	.716	.952	.710	.949	.741	.872
51,483	.625	.984	.635	1.006	.654	.901
54,040	.768	.996	.778	1.009	.786	.908
54,792	.957	.941	.943	.932	.961	.866
56,587	1.133	.969	1.152	.989	1.124	.890
56,818	.809	.991	.817	1.003	.821	.907
64,396	1.096	.991	1.127	1.017	1.088	.909
65,399	.876	.990	.880	.996	.911	.885
75,072	1.052	.993	1.052	.996	1.048	.932
77,951	.911	1.002	.911	1.000+	.918	.927
84,651	.781	.995	.781	.994	.793	.927
95,432	.792	.984	.792	.984	.804	.926
104,801	.940	.977	.941	.976	.945	.924
110,846	1.218	.983	1.217	.983	1.209	.935
148,897	1.151	.990	1.150	.989	1.148	.967
149,138	.660	.987	.660	.987	.667	.965
157,136	.670	1.000+	.670	.998	.676	.983
276,094	.793	1.000	.793	1.000	.793	1.000

TABLE II—Continued

WORKMEN'S COMPENSATION—NEW YORK

Preliminary Study of Experience Ratings for July 1941 for Risks Written on a Statutory Medical Coverage Basis

SUMMARY

Size of Expected Losses	Type of Risk	No. of Risks	Present Method		Proposed Method I		Proposed Method II	
			Average Modification	Average Z_p	Average Modification	Average Z_p	Average Modification	Average Z_p
0— 8,499	All Risks	1,752	.987	.433	Same as Present Method		.987	.433
8,500—12,000	Credits	36	.818	.862			.833	.810
	Charges	22	1.190	.881			1.179	.817
	All Risks	58	.961	.869			.966	.813
0—12,000	All Risks	1,810	.984	.487			.985	.480
12,001 & Over	Credits	79	.791	.966	.790	.973	.805	.897
	Charges	57	1.180	.960	1.184	.970	1.166	.880
	All Risks	136	.933	.964	.935	.972	.937	.891
Grand Total	All Risks	1,946	.959	.720	.960	.724	.962	.681

STATE REGULATION OF INSURANCE RATES

BY

CLARENCE W. HOBBS

INTRODUCTION

The stretching out of the long arm of the state to regulate and control the prices to be charged for insurance is a single incident in a legislative program, very wide-spread in scope, fairly modern in development, and at present proceeding at an accelerated rate. Legislation inevitably is colored by the national ideology, and that ideology has undergone and is still undergoing a profound change. The older of us can still recall the individualistic ideology that prevailed throughout most of the 19th century, and the emphasis laid in it upon free competition and the law of supply and demand. Prices, it was thought, followed a natural law, and legislative attempts to interfere with the operation of that law were not merely useless but positively harmful.

The ideology of today is essentially collectivistic, with an opposition still running between private collectivism and state or national collectivism. The characteristic business entity is today not the individual but the corporation; employment is consummated in increasing measure not with individual employees but with members of a union. Associations of business organizations, of producers, of consumers, for this or for that purpose, constitute an increasing portion of economic life. That is what is meant by the term, private collectivism; and the State and Nation, sending out ever-increasing forces of regulatory and policing officials, and themselves performing actual economic activities, constitute what is meant by public collectivism. The individual becomes more and more a cog in a machine, and the economic theories of the individualistic period assort but ill with conditions of today.

Conditions of today are the result of a continuous growth in that direction. Competition is a form of warfare, and its consequences are frequently only slightly less harmful to the victor than to the vanquished. The natural result is, that combatants seek allies, and by organization seek to achieve a common victory. But when such an organization is formed, competition between members of the organization ceases; and if the organization wins a definite superiority over the field, no real competition is left. Similarly, once such an organization has practical control of the sources of supply, the law of supply and demand ceases to operate.

The possibility of these combinations being used to the public detriment was very present to the minds of legislators of the past generation, taking the form of anti-monopoly and anti-trust laws. These may be taken as the natural reaction of the individualistic ideology to a situation wherein the individual might be powerless before the organized gang. But it is not possible to curb by such means a wide-spread and very general economic movement. Once the principle of alliance and combination is established, it is very difficult for legislatures or courts to divorce the alliances, still more difficult to set the individual members fighting again. An unrestrained competition is no very healthy thing. Up to a certain point it makes for rivalry and progress; but carried to the extreme it is a brutal crushing of the weak by the strong, and leaves the battle-grounds strewn with economic corpses, with many of the victors in sorry case, nursing sore wounds, and at once handicapped for efficient service, and compelled to seek recoupment of loss in higher prices. The law of supply and demand, operating blindly and unrestrained, creates periods of over-production, necessarily followed by periods of idleness, alternations of hopeful activity and black depression. These conditions are thoroughly bad for the community and entail a huge wastage. To eliminate combinations is likewise to eliminate any hope of realizing the economy and efficiency possible through transacting business in large units or through joint services.

There has developed a certain tendency, by no means universal, or generally accepted, but wide-spread enough to be distinct and noticeable, to regard combination within limits as on the whole a good thing for the community, and to permit the same within restrictions and under supervision. One of the most effective restrictive methods is control of prices.

Control of prices is a common and necessary thing in times of great public emergency. In normal times, freedom of bargain and sale is generally regarded as desirable. From very ancient times some control was practiced over the charges of businesses public in character, such as the common inn, the common carrier, the grist-mill and the like. This developed during the last century into a very general tendency to control the rates charged by public utilities, and this led to control of prices charged by businesses whose functions were essentially of a private nature, but which, by virtue of conditions, might be regarded as "affected with a public use." Presently, a very wide-spread emergency control of prices seems in the making; and the present view of the courts would appear to be that the legislative power to control prices is very broad indeed, and that ordinarily they will not undertake to overrule a legislative declaration that such control is in the public interest.

Insurance occupies a peculiar position. An insurance company is not a public service company, but it is, accordingly to good legal precedent, engaged in a business affected with a public use. The right of legislatures to regulate its rates, its policy forms and its methods of doing business is no longer a controversial issue. On the other hand, insurance rates are not related to ordinary laws of supply and demand. Certain limitations to the amount of insurance a company can write are dictated by prudence; other limitations have been set up by statute in the form of provisions limiting the amount that can be insured in a single policy, in the form of reserve requirements and other provisions relating to financial conditions. Certain limitations to the price that should be charged are found in the fact that soliciting, issuing, servicing and underwriting a policy entail a certain cost, and in the other fact that the policy undertakings entail a certain hazard of loss, which must be estimated with a high degree of accuracy. But these limitations are not so exact or rigid as to inhibit a lively competition for business, and at times a reckless and unscrupulous competition as well. Insurance companies have been driven to resort to combination to avoid the more disastrous results of competition. In so doing they have found themselves assailed as conspirators against the public welfare, sometimes under the common law, sometimes under anti-trust statutes. This phase has been succeeded by the recognition of a certain public interest in controlling the evils of competition; by the legitimization of rating organizations, and by provision for controlling rates, establishing rating standards, and setting up machinery for filing, approval, modification and application. This development has been by no means uniform; and is in most states confined to specific lines.

There are, however, laws more general in scope; and in no state are these all-comprehensive.

This paper, originally written some 16 years ago, has required considerable revision, and must appear, not as a whole, but in parts. Those 16 years have witnessed a profound change in theories of constitutional law, and in the governmental organization of the nation, which has made a long advance from a confederation of states essentially autonomous toward a nation integrated about the federal organization. Some things then written are today out-of-date; a similar interval would doubtless require what is now written to be revised. There has, however, been a growth along the line indicated, namely toward a more extensive use of regulation and supervision of rates, a more general acquiescence in the fact that competition in insurance must in the public interests be kept within reasonable limits. This can be done in part by regulatory laws; in part it must be achieved by the cooperation of the companies themselves, acting in unison for common ends.

The Anti-Compact Principle

The combinations of insurance companies for the purpose of establishing joint policies as to rates and kindred matters arose from a consciousness of the evil effect of competition. Where competition was achieved by means of favorable rating treatment for desirable business, the approximate result was a departure from the principle that rates are to be made on some basis which comes somewhere near a scientific evaluation of the hazards involved, and the other principle that risks of the same sort ought to receive identical rating treatment. These were principles, not necessarily of law, but of common sense and of natural equity. Competition meant fair license for big and powerful companies to underbid the small and weak. It made for precarious financial conditions of all companies; and it made for the big risks getting more favorable rating treatment than the little ones. When competition was affected by means of bidding for the services of agents, it meant that the cost of doing business was ever on the increase, and sooner or later an increase in rates must follow. Where competition was affected by means of policy forms, it introduced into the business a most undesirable situation, imposing on the purchaser of a policy the necessity of reading it very carefully indeed, and tainting the whole business with a degree of discredit. There were, therefore, reasons why the companies or some part of them should desire agreements on these points, and some of these reasons were also in the public interest.

But attempts to affect such agreements brought opposition from several sources. Big purchasers of insurance liked a competitive system out of which a shrewd and important purchaser might extract a substantial advantage. Small purchasers were easily moved into opposition by the cry of monopoly. Agents objected to being deprived of a chance to bid for business, and still more to having their commissions held to a uniform scale. Non-bureau companies objected to methods used by bureau companies, designed to make it difficult for them to stay outside. The result was a deal of litigation followed by a deal of statute writing.

Litigation at Common Law:

Attempts to invoke common law principles as a foundation for private actions for damages or for injunctive relief, or for prosecutions or informations in the nature of *quo warranto* were generally unsuccessful. Rating compacts were no doubt contracts in restraint of trade; but such contracts were illegal at Common Law only in the sense that the courts, on considerations of public policy, would refuse to enforce rights claimed thereunder. So long as they were for the advantage of the parties thereto, and not aimed at a particular person or class of persons, there was no right of action for damages, even if one sustained actual injury thereby.[1]

Similarly, while at common law conspiracy was an indictable offense, and also an actionable tort, conspiracy consisted in a combination of two or more persons to do a criminal or unlawful act, or a lawful act by criminal or unlawful means. If the end or the means would have been legal for a single company, neither was rendered illegal by the mere fact that several companies were acting in unison.[2]

[1] Williston on Contracts, Section 1664 A

[2] Joyce on Monopolies, Sections 3, 4

Monopoly as such was not a common law offense. The Common Law in fact understood by monopoly a grant under letter-patent of the Crown. Abuse of crown monopolies led to a widespread opposition thereto; but the only monopolies which were positively illegal at Common Law or under ancient statute were those comprehended by the terms *Engrossing, Regrating,* and *Forestalling,* all limited to conspiracies affecting victual or other marketable commodities.[3]

Thus, while in New Jersey an information brought on common law grounds resulted in an injunction, and while like results followed in lower court proceedings in Indiana and Ohio, the general course of judicial decisions was to the effect that a rating compact, as such, was not positively illegal as to its ends, and if no illegal means were involved was not a sufficient foundation for an action for damages, a bill seeking injunctive relief, an indictment or an information.[4]

On the other hand, where, as in the case of Continental Insurance Co. *v.* Board of Fire Underwriters of the Pacific, cited in note 4, there was an attempt, collateral to the agreement, by agents of the companies involved, to use a boycott against those insuring with a non-member company, or to make unfair assault on its business, those acts might be the subject of an injunction, as would the agreement itself had it contemplated the use of such methods, which are in themselves illegal.

Litigation Under General Anti-Trust Laws:

Almost every state has a general anti-trust law, some fairly sweeping in their terms. Attempts have been made from time to

[3] Joyce on Monopolies, Sections 5, 7, 11

[4] 21 A.L.R. 543
State ex rel *McCarter* v. *Firemen's Fund Insurance Co.,* 73 Atl. 80, 29 L.R.A.N.S. 1194 (N. J.)
Continental Ins. Co. v. *Board of Fire Underwriters of the Pacific,* 67 Fed. 310
Queen Ins. Co. v. *State,* 22 S.W. 1048, 24 S.W. 397 (Texas)
Harris v. *Commonwealth,* 73 S.E. 561 (Va.)
McGee v. *Collins,* 100 So. 430 (La.)
Louisville Board of Fire Underwriters v. *Johnson,* 119 S.W. 153 (Ky.)
Booker and Kinnaird v. *Louisville Board of Fire Underwriters,* 224 S.W. 451 (Ky.)
Aetna Ins. Co. v. *Commonwealth,* 51 S.W. 624 (Ky.)
People ex rel *Pinckney* v. *N. Y. Board of Fire Underwriters,* 7 Hun. 248 (N. Y.)

time to bring proceedings under anti-trust laws in cases where the law did not specifically refer to insurance. If the anti-trust law, as is frequently the case, is aimed at combinations affecting production of or trade in the necessities of life, commodities, manufactured products or articles of use, merchantable in character, or have specific application to trade and commerce, it is tolerably certain that it does not apply to insurance; and such was the holding in cases in Florida, Kentucky and Virginia. In Mississippi, on the other hand, the court found the Act of that state broad enough to cover insurance agreements, and in Iowa, the court ruled that insurance was a "commodity," within the meaning of the Anti-Trust Act.[5]

Special Anti-Trust Provisions and Litigation Thereunder:

Special anti-trust provisions directed specifically at insurance are not uncommon, either as part of the anti-trust laws, or as isolated provisions in the insurance laws. They were more common in the past than at present, and a deal of the litigation thereunder is old. This may be taken as an indication of a somewhat different legislative and administrative view as to rating compacts of insurance companies, and also undoubtedly reflects to the fact that legislation specifically authorizing the maintenance of rating bureaus has become increasingly common.

Appendix 1, hereto annexed gives in brief, the anti-trust laws of the several states. Here it will suffice to note, State by State, the specific provisions that have been inserted in the statutes with regard to insurance, or that have figured in litigation.

Alabama:

Alabama formerly had a provision, cited as Code 1896, Sections 2619, 2620, Code 1907, Sections 4954, 4955. This provision has apparently been repealed, but while on the books gave rise to a

[5] *Werth* v. *Fire Companies' Adjustment Bureau,* 171 S.E. 255, Certiorari Denied, 290 U.S. 659 (Va.)
Brock v. *Hardie,* 154 So. 690 (Fla.)
Aetna Ins. Co. v. *Commonwealth,* 51 S.W. 624 (Ky.)
International Harvester Co. v. *Commonwealth,* 99 S.W. 637
American Fire Ins. Co. v. *State,* 22 So. 99 (Miss.)
Beechley v. *Mulville,* 70 N.W. 107 (Iowa)

number of cases, one going to the Supreme Court of the United States, where its constitutionality was upheld. The statute was directed at fire insurance, and in substance authorized the holder of a policy issued by a company which was a member of a tariff association to recover 25% of the face of the policy in addition to any loss; and exempted the policyholder from the necessity of filing notice or proof of loss. As interpreted, the 25% was upon the amount recoverable under the policy.[6]

Arizona:

The Anti-Trust Law, Code 1939, Section 74-101, includes in its definition of trusts, combinations "To control the cost or rate of insurance." The provision has not figured in litigation.

Arkansas:

Digest, 1937, Section 9408, states that an insurance company is permitted to do business in the state on compliance with the insurance laws "Provided, that such corporation is not a member of or a partner to any pool, trust, agreement, combination, confederation or understanding made in this state or elsewhere to regulate, fix or maintain insurance premiums on property in this state."

The original form of this provision, contained in the so-called Rector Anti-Trust Law, was dangerously broad in its terms, and was held by the courts to justify the exclusion of a corporation which was a member of a ratemaking association to fix any rate on any insurance, whether on Arkansas property or on property entirely outside the state. The provision as redrafted permits companies to employ the services of a common rating expert, and as assessment made against a company employing such a common expert having in charge the administration of the Dean Analytical Schedule was in a later case held valid.[7]

[6] *Continental Insurance Co.* v. *Parkes,* 39 So. 204
Firemen's Fund Insurance Co. v. *Hellner,* 49 So. 297
Aetna Insurance Co. v. *Kennedy,* 50 So. 73
Southern States Fire Insurance Co. v. *Kronenberg,* 74 So. 63
German Alliance Insurance Co. v. *Hale,* 219 U.S. 307

[7] *State* v. *Lancashire Fire Insurance Co.,* 51 S.W. 633
Hartford Fire Insurance Co. v. *State,* 89 S.W. 42
National Union Fire Insurance Co. v. *Dickinson,* 194 S.W. 254

Georgia:

The Constitution, Section 2-2504, contains a provision denying the General Assembly authority to authorize corporations to make any contract or agreement which may have the effect or be understood to have the effect of lessening competition or encourage monopoly, and such contracts or agreements are declared illegal and void.

The Georgia Code, Annotated, Section 56-219, prohibits combinations of insurance companies which tend to prevent or lessen competition in the business of insurance.[8]

Iowa:

Code 1939, Section 9010, contains a provision making unlawful combinations or agreements relating to the rates to be charged for insurance, the amount of commissions to be allowed to agents for securing or procuring the same, or the manner of transacting the insurance business within the state. The constitutionality of this statute was sustained in one case by the Supreme Court of the United States.[9]

Kansas:

General statutes 1935, Section 50-101, declares unlawful combinations "To control the cost or rates or insurance." This provision has figured in several cases, none of more than passing interest.[10]

Louisiana:

General Statutes 1939, Section 4173, states that it is unlawful for fire insurance companies to form combinations or contracts "For the purpose of governing, controlling or enforcing the rates charged for insurance on properties situated in the state." It specifically permits the use of common agents to supervise and advise of defective structures or to suggest improvements to lessen fire

[8] *Blackmon* v. *Gulf Life Insurance Co.*, 175 S.E. 798

[9] *Carroll* v. *Greenwich Insurance Co.*, 199 U.S. 401
Beechley v. *Mulville*, 70 N.W. 107

[10] In re *Pinkney*, et al, 27 Pac. 179
State v. *Phipps*, 31 Pac. 1097
Agricultural Insurance Co. v. *Aetna Insurance Co.*, 239 Pac. 974

hazards. It has not figured in litigation, the case of *McGee* v. *Collins,* 100 So. 430, involving merely the general legality of insurance compacts or combinations.

Michigan:

Michigan Statutes, Annotated, Section 24-99 *et seq.* (a) requires Fire and Marine Companies to execute and file undertakings not to enter into agreements, the object of which is to prevent open and free competition between companies and their agents in the business transacted in the state or any part thereof, (b) forbids the making of such contracts, (c) forbids agents' agreements to prevent competition. It has figured in one case.[11]

Mississippi:

As previously stated, the Mississippi Anti-Trust Law was held broad enough to inhibit insurance rating compacts. Subsequently a specific provision was added, prohibiting combinations to regulate or affect "The price or premium to be paid for insuring property against loss or damage by fire, lightning or tornado, or to maintain such prices when so regulated or fixed." This provision was involved in some striking litigation, in the form of a prosecution, and of a number of actions to recover penalties. The prosecution failed, the court holding that use by a company of an advisory rate did not constitute a violation of the law in the absence of allegation and proof of a compact with other companies. The actions for penalties led to the repeal of the provision by Act 1926, chapter 182.[12]

Missouri:

The Missouri Revised Statutes, 1939, Sections 8300-8304, contains a provision substantially the same as that quoted from Mississippi, the only difference being the use of the word "storm," instead of "tornado." There have been two very picturesque anti-

[11] *Hartford Fire Insurance Co.* v. *Raymond,* 38 N.W. 474

[12] *State* v. *Fidelity Union Fire Ins. Co.,* 88 So. 711
Aetna Ins. Co. v. *Robertson,* 88 So. 883
Nugent and Pullen v. *Robertson,* 88 So. 895

trust proceedings in Missouri; the first under the above provision as it appeared in the Act of 1907, c. 208, Section 1: an information in the nature of *quo warranto,* directed at the defendant companies for maintaining an illegal rating organization. The case is a classic in point of vigor of judicial language. The second case involved a *quo warranto* proceeding against fire insurance companies constituting three-fourths of those operating in Missouri, who had declared intention to cease to write business in Missouri on and after a certain date. This was after the passage of an act permitting companies to employ joint experts for ratemaking purposes, and the court held, and properly enough, that the repeal of acts inconsistent with this act did not operate to repeal the anti-trust act. There was question of course whether such a combination could properly come within the language of the statute as a combination to regulate or fix the price or premium to be paid for insurance. The court, however, held that it was an illegal combination.

A third case, brought against an underwriters' association by a former member, expelled for violating a rule against dealing with non-members, was a much milder affair. The court held the association had the right to make and enforce the rule, and that there was no violation of the anti-trust law.[13]

Nebraska:

Compiled Statutes 1929, Section 59-101, includes in its definition of illegal trusts, a combination "to prevent competition in insurance, either fire, life, accident or any other kind." Section 59-301 *et seq.,* further declares unlawful compacts of fire insurance companies "relating to the rates to be charged for insurance, the amount of commissions to be allowed agents for procuring insurance, or the manner of transacting the business of insurance within this state."

The provisions as to commissions and manner of transacting business were held unconstitutional in a case in the Federal courts; but this decision is undoubtedly wrong. There was another case involving this section, which figured in two different

[13] *State* v. *Firemen's Fund Insurance Co.,* 52 S.W. 595
State v. *Insurance Co. of America* et al, 158 S.W. 640
Bersch v. *Fire Underwriters' Ass'n. of St. Louis,* 241 S.W. 428

decisions of the Nebraska court; but the issues involved are highly technical.[14]

Ohio:

Page's Code, 1938, Section 9563-9564 requires revocation of license of companies which enter into compacts "for the purpose of controlling the rates charged for fire insurance on property within the state, or controlling the rate per cent amount of commission on compensation to be allowed agents for procuring contracts for such insurance on such property." The second section permits the use of common agents for certain purposes, and the whole statute is overlaid by the Fire Bureau Rating Law. It has not figured in litigation.

Oregon:

Compiled Laws 1940, Section 101-142 declares unlawful compacts or joint acts for the purpose of controlling the rate to be charged, commissions or other compensation to be paid for insuring any risk or classes of risk in the state, or for the purpose of discriminating against any company manager or agent, because of plan or method of doing business, or affiliation or non-affiliation with any association or for any purpose detrimental to free competition or injurious to the insuring public.

South Carolina:

Code 1932, Section 6624 prohibits as conspiracies compacts to fix or limit "the price or premium to be paid for insuring property against loss or damage by fire, lightning, storm, cyclone, tornado, or any other kind of policy."

South Dakota:

Code 1939, Section 31-2310, declares unlawful agreements "relating to rates charged for insurance on property against damage

[14] *Niagara Fire Ins. Co.* v. *Cornell,* 110 Fed. 816
State v. *American Surety Co.,* 133 N.W. 235, 135 N.W. 365

by fire or the elements, fixing minimum premiums for such insurance or the amount of commission allowed to agents for procuring it, or the manner of transacting such insurance business in the state."

Tennessee:

The Tennessee statutes formerly contained an anti-compact provision prohibiting agreements of fire insurance companies looking for maintenance of any specific rates to be charged for insurance on any property located in the state, the amount of commission to be allowed agents for procuring the same, or the manner of transacting fire insurance business within the state. The provision originally appeared in the Acts of 1905, chapter 479, section 1. This act was amended by Acts of 1919, chapter 8; this amendatory act was repealed by Acts of 1919, chapter 33. The next codification, section 3348a21, refers to the provision as if it had been repealed in its entirety, and it does not appear in later codifications.

Texas:

The Texas Anti-Trust Law, Vernon's Texas Statutes, sections 7426-7447, contains a number of provisions specifically applying to insurance. Section 7426 defines a trust as a combination, (1) to fix, maintain, increase or reduce the cost of insurance, (2) to prevent or lessen competition in the business of insurance, (3) to fix or maintain any standard or figure whereby the cost of insurance shall be in any manner affected, controlled or established, (4) to make, enter into, maintain, execute or carry out any contract (a) to make any contract of insurance at a price below or above a common standard or figure, (b) to keep the price of insurance at a fixed or rated figure, (c) to affect or maintain the cost of insurance, (d) to preclude free and unrestricted competition in insurance, (e) pooling interests in connection with insurance in such a way as to affect price, (5) to regulate, fix or limit the cost of insurance which may be undertaken.

This long and rather obscure series of provisions has been the theme of some litigation worth noting in detail. The case of

Palatine Insurance Company v. *Griffin,* 202 S.W. 1014, 235 S.W. 202, 238 S.W. 637, ran through several court stages. Griffin ran a grocery store. He had fires in his store December 26, 1911 and March 3, 1912, and a third on April 20, 1913. He and the adjusters disagreed as to amount of this last loss, and it was adjusted by appraisal. There was evidence that the adjusters had, pending the appraisal, told him he had better settle; that if he got on the blue book he would never get off, and that the fire looked suspicious. They made reports to the companies represented by them, and the companies on the basis of the reports cancelled their policies, not only on Griffin, but on the building into which he moved. This action was brought to recover damages for a conspiracy.

The court in the first case upset a verdict for the plaintiff on the grounds that, while a combination to refuse to grant insurance was no doubt an illegal conspiracy, the individual act of an adjuster did not constitute a conspiracy. This action was reversed in the second case. In the third case, the court remanded the matter for a new trial, but indicated the opinion that the refusal of insurance companies in combination to write insurance for one individual is illegal.

Potomac Fire Insurance Co. v. *State,* 18 S.W. 2nd, 929, (1929) was a proceeding by the state against certain insurance companies to restrain the carrying out of an agreement limiting agents' commissions on fire insurance business to 20% and agreeing not to accept business from an agent charging more than 20%. This was held a violation of Section 7426, being designed to affect the cost of insurance and to prevent or lessen competition.

Gaddy v. *Republic Insurance Co.,* 74 S.W. 2nd, 728 (1934) was an action for damages against several insurance companies, claiming an unlawful combination to refrain from doing business with the plaintiff. Gaddy, the plaintiff, was an agent, who was apparently behind in his accounts. The court intimated the extraordinary opinion that the anti-trust law prohibits acting in combination for any purpose, even an action which any of the parties might properly have taken for the legitimate protection of their interests. The court reversed a directed verdict for the defendants, save as to one company which went no further than to advise the plaintiff to issue no more policies until he had remitted all unpaid balances due.

Gulf Insurance Co. v. *Gaddy,* 103 S.W. 2nd, 141 was a writ of error on the part of the companies involved in the above decision. In this proceeding more of the facts appeared. Gaddy was behindhand in his settlements, and wrote the Gulf Insurance Company, indicating that he hoped to receive credit to enable him to continue his business, but that he would on advice to that effect, discontinue the writing of business. The companies were in correspondence with Gaddy on this matter and some of the agents called on him jointly to check over the situation. The Gulf Insurance Company's agent was informed that the Fidelity-Phoenix intended to cancel Gaddy's license, and thereupon notified Gaddy his license was suspended.

The court said, very sensibly, that this was not a conspiracy, but a necessary act, to prevent Gaddy from transferring to the Gulf Insurance Company the business of the companies who had suspended his license. The company had the right to terminate the agency at will, and the fact that the immediate cause for action was information that other companies were terminating their agencies did not affect that right. As to the Fidelity-Phoenix, the court indicated, that inasmuch as the company was bound to notify the Board of Insurance Commissioners of the revocation, and inasmuch as the notice of revocation, once on file was for the information of the public, the company did no wrong in notifying a number of the public of the fact.

The cases are illustrative of the pitfalls that lurk for the unwary—and even for the eminently wary — under an anti-trust law like that of Texas.

Vermont:

Public Laws, 1933, Section 7124 contains a prohibition of agreements of rating organizations or any two insurers to refuse to do business with or pay commissions to an authorized licensed insurance broker because such broker will not agree to secure insurance only at the rate of premium fixed by the Rating Association or by the parties to the agreement.

Washington:

Remington's Revised Statutes, section 7076, declares unlawful agreements for the purpose of controlling the rates to be charged for insuring any risk or classes of risks in this state or for the purpose of discriminating against or differentiating from any company, etc. by reason of its plan or method of transacting business or its affiliation or non-affiliation with any board or association of insurance companies or for any purpose detrimental to free competition in the business or injurious to the insuring public.

Section 7158 is designed to protect agents' commission in cases where a company indulges in "rate wars."

The above citations indicate fairly well that the anti-trust idea is by no means dead, although perhaps less in honor than it used to be. Some of the provisions quoted are intended to protect the public, some are very evidently intended to protect the agent; and in view of recent decisions in the Supreme Court of the United States, that is a legitimate legislative object.

On the other hand, some kinds of cooperation between companies are not merely useful to them, but distinctly in the public interest. If they cannot exchange information so as to debar the assured who is reckless, wilfully negligent, fraudulent or criminal, the public pays the cost, not merely in mounting insurance rates but in encouragement of a highly dangerous class which may at any time extend its operations beyond the insurance field. So, too, if they cannot eliminate an agent who does not pay his accounts, without running the risk of an anti-trust suit, as seems to be the case in Texas, the law is merely being perverted into a shield of financial irresponsibility. It is pretty generally admitted that companies ought to be able to take joint action looking towards loss prevention, for in that the public has a direct interest. And if they may do this, joint action to penalize inferior risks in the form of rate differentials is the only logical method of doing justice to the better risks. It is pretty generally admitted that there should be equality of treatment; that the big risks ought not to be able to get insurance on better terms than the small risks; but a system of free competition sets everybody to bidding for the business of the big risks. If it is desired that rates be made on a scientific basis, then the use of a common system of classifications, standard forms of coverage, and standard underwriting rules and practices becomes necessary in order that a proper statistical basis be developed. If it is desired that insurance be as cheap as possible, then common services, and a standard commission schedule become necessary.

Thus in one way and another, the anti-trust principle has been evaded, over-laid by legislation entirely inconsistent therewith, and tends to fall more and more into the background. The citations given above, however, indicate fairly clearly that the principle is not dead, and that in some states it is still necessary for insurance companies to use a deal of caution.

ANTI-TRUST STATUTORY REFERENCES

The statutes cited herein are anti-trust provisions. Those italicized contain provisions specifically relating to insurance. The column headed "General Application" is intended to list the items as to which illegal combination is forbidden.

State	*Reference*	*General Application*
Alabama	Constitution, sec. 103 Code 1940, Title 57, secs. 106-108 Title 7, secs. 124, 125	"Articles of necessity, trade or commerce." "Article or commodity to be produced, manufactured, mined or sold"; article of commerce," "commodity."
Alaska	No reference, see United States	
Arizona	*Code 1939—74-101*	*"Cost or rates of insurance."*
Arkansas	Digest 1937, c. 113, secs. *9407-9433*	(General anti-trust Law)
	9408	*"Insurance premiums on property in this state."*
California	General Laws 1937, Act 8702	"Trade or commerce," "Merchandise or any commodity," "Any article or commodity."
Colorado	Statutes, Consolidated, 1935 Vol. 4, c. 167, sec. 1.	"Trade or commerce or aids to commerce," "Merchandise, produce or commodities," "Merchandise, produce, ores or commodities," "Aids of commerce," "Any article or commodity of merchandise, produce or commerce." See *Clare* v. *Frink Dairy Co.,* 274 U. S. 445.
Connecticut	General Statutes, 1930. sec. *6352*	"Ice, coal or other necessity of life."
Delaware	Revised Code, 1935—sec. 5284	(Generaſ. Relates to conspiracies.)
Dist. of Col.	No reference, see United States	
Florida	Compiled General Laws, 1927 secs. 7944-7954	"Trade or commerce or aids to commerce," "Any business authorized by the laws of this State," "Merchandise, produce or commodities," "Any article or commodity of merchandise, produce or commerce."
Georgia	Georgia Code, Annotated. Constitution, sec. 2-2504	General.
	sec. 56-219	*"Preventing or lessening competition in the busniess of insurance transacted in this State."*
Hawaii	Revised Laws 1935, sec. 5720	(General. Relates to Conspiracy.)
Idaho	Code 1932 sec. 17-4013 sec. 47-101 to 117	"Any article of commerce, or produce of the soil, or of consumption by the people." "Trade or commerce."

State	*Reference*	*General Application*
Illinois	Smith-Hurd, Ann, Sts. c. 38, secs. 569-577	"Any article of merchandise or a commodity." "Any article, commodity or merchandise to be manufactured, mined, produced or sold in this State."
Indiana	Burns. Indiana Statutes 23-101 *et seq.*	"Merchandise or articles imported into the State." "Trade or commerce."
Iowa	Code 1939 c. 434 *sec. 9010*	"Articles, commodities and merchandise." *"The rates to be charged for insurance, the amount of commissions to be allowed agents for procuring the same, or the manner of transacting the insurance business within the State."*
Kansas	General Statutes 1935 *secs. 50-101 et seq.*	"Merchandise, products or commodities." *"The costs or rates of insurance."*
Kentucky	Constitution, Sec. 198 (Anti-trust act repealed. See Act March 23, 1922, c. 71, p. 217)	"Any article."
Louisiana	Dart. General Statutes, 1939 secs. 4905 *et seq.* *secs. 4173 et seq.*	"Trade or commerce," "Merchandise, products or commodities," "Any commodity in general use." (*Fire insurance companies only*) *"For the purpose of governing, controlling or influencing the rates charged for insurance on property situated within this State."*
Maine	Revised Statutes 1930 c. 138, secs. 25-30	"Trade or commerce."
Maryland	No reference	
Massachusetts	Annotated Laws c. 93, secs. 1-14	"Goods, wares, or merchandise," "Any article or commodity in common use," "Any commodity in general use," "Goods or commodities," "Necessities of life."
Michigan	Michigan Statutes, Annotated, c. 278, secs. 28, 31 *et seq.* *secs. 28, 99 et seq.*	"Trade or commerce," "Merchandise or commodity," "Merchandise, produce or any commodity," "Any article or commodity of merchandise, produce or commerce," "Any article of machinery, tools, implements, vehicles or appliances," "Any avocation employment, pursuit, trade, profession or business." (*Fire and Marine Companies*) *"To prevent open and free competition between companies and their agents in the business transacted in the state or any part thereof."*
Minnesota	Mason's Minnesota Statutes 1927 sec. 10463	"Articles of trade, manufacture or use."

State	*Reference*	*General Application*
Mississippi	Code 1930 c. 68 secs. 3436-3437	"Restraint of trade," "Commodities (*Provision in Mississippi anti-trust law relating to insurance eliminated, Act 1926, c. 182*)."
Missouri	Revised Statutes, 1939, secs. 8300-8304	*"The price or premium to be paid for insuring property against loss or damage by fire, lightning or storm."*
Montana	Revised Codes, 1935 secs. 10901 *et seq.*	"Any article of commerce," "Merchandise or commodities," "Commodity or product in general use."
Nebraska	Compiled Statutes, 1929 *sec. 59-101* *secs. 59-301 et seq.*	*"To prevent competition in insurance either life, fire, accident or any other kind." (Fire insurance companies insuring property against casualties from the elements.) "The rates to be charged for insurance, the amount of commissions to be allowed agents for procuring insurance, or the manner of transacting the business of fire insurance within this state."*
Nevada	No reference	
New Hampshire	Public Laws 1926 c.168 secs. 1-9	"Trade or commerce," "Merchandise or commodity," "Merchandise, produce or commodity," "Any article or commodity of merchandise, produce or commerce," "Any article or commodity, or any article of trade, use, merchandise, commerce or consumption."
New Jersey	(Anti-trust law repealed, Act 1920 c. 143)	
New Mexico	New Mexico Statutes, 1929 secs. 35-2901 *et seq.*	"Trade or commerce," "Article of manufacture or product of the soil." (See Sec. 71-167.)
New York	McKinney's Consolidated Laws General Business Law sec. 340 *et seq.*	(No specific reference to insurance.)
North Carolina	Code 1939 secs. 2559 *et seq.*	"Trade or commerce," "Any article produced in this State by the labor of others," "Goods, wares, merchandise, articles or things of value."
North Dakota	Code 1913 c. 65, secs. 9950 *et seq.*	"Trade," "Property, merchandise or commodities," "Property, articles or commodities or merchandise, produce or manufacture," "Property, commodity or article of trade, use, merchandise, commerce or consumption."
Ohio	Page's Code, 1938 secs. 6390 *et seq.*	"Trade or commerce," "Merchandise or commodity," "Merchandise, produce or commodity," "Any article or commodity of merchandise, produce or commerce," "Any article or commodity or any article of trade, use, merchandise, commerce or consumption."

State	*Reference*	*General Application*
Ohio	*secs. 9563-9564*	*"The rates charged for fire insurance on property in this state, or . . . the rates percent amount of commission or compensation to be allowed agents for producing contracts for such insurance on such property." (See, however, 9593-1 et seq.)*
Oklahoma	Oklahoma Statutes Annotated Title 79, secs. 1 *et seq.*	"Trade or commerce," "Any commodity of general use."
Oregon	Compiled Laws, 1940 secs. 43-101 *et seq.* *sec. 101-142*	"Commerce and/or food commerce." *"The rate to be charged or commissions or other compensation to be paid for insurance any risk or classes of risks in this state, or for the purpose of discriminating against or differentiating from any company, manager or agent, by reason of his or its plan or method of transacting business or his or its affiliation or non-affiliation with any board or association of insurance companies, managers, agents or representatives, or for any purpose detrimental to free competition in the business or injurious to the insuring public."*
Pennsylvania	No reference	
Rhode Island	No reference	
South Carolina	Code 1932 *secs. 6620 et seq.* *(sec. 6624)*	*"The price or premium to be paid for insuring property against loss or damage by fire, lightning, storm, cyclone, tornado, or any other kind of policy."*
South Dakota	Code 1939 secs. 13-1801 *et seq.*	"Trade," "Commodities," "Any product or commodity," "Any commodity in general use."
	sec. 31-2310	*(Fire insurance companies) "Rates charged for insurance of property against damage by fire or the elements, fixing a minimum premium for such insurance, or amount of commission to be allowed to agents for procuring it, or the manner of transacting business in this state."*
Tennessee	Williams Code, 1934 Title 14, c. 1, secs. 5880 *et seq.*	"Articles imported into the state, articles of domestic growth, domestic raw materials." "Products or articles manufactured in this state or imported into this state." *(For insurance anti-trust provision, formerly in Tennessee Laws, see Acts 1905, c. 479, sec. 1; Acts 1919, c. 8, c. 33.)*
Texas	*Vernon's Texas Statutes* *secs. 7426 et seq.*	(Numerous special references to insurance.)

State	*Reference*	*General Application*
United States	(Sherman Anti-Trust Act) 15 U.S.C.A. sec. 1 *et seq.* am. Act Aug. 17, 1937, c. 690	"Trade or commerce among the several states or with foreign nations" (Secs. 1 and 2). "Trade or commerce in any territory of the United States or the District of Columbia, or in restraint of trade or commerce between any such territory and another or between any such territory or territories and any state or states or the District of Columbia or with foreign nations or between the District of Columbia and any state or states or foreign nations" (Sec. 3). "In restraint of lawful trade or free competition, in lawful trade or commerce in the United States of any imported article or of any manufacture into which the imported article enters" (Section 8, Tariff Act). "Trade or commerce among the several states and territories, insular possessions (except the Philippine Islands) and foreign nations" (Section 12, Clayton Act). "Commodities sold for consumption or resale" (Section 13, Clayton Act).
Utah	Revised Sts. 1933, Title 73	"Prices of professional service, any products of the soil, any article of manufacture and commerce, or cost of exchange or transportation," "Any article of merchandise or commodity," "Any article, commodity or merchandise to be manufactured, used, produced or sold in this state," "Any article of commerce," "Any part of trade or commerce."
Vermont	Public Laws 1933 sec. 5855	"A monopoly or . . . (restraint of) competition in trade."
	sec. 7124	*Rating organizations prohibited from charging licensing or other fees to brokers. Refusal to do business with, or pay commissions to, licensed broker who will not agree to secure insurance only at certain rates of premium prohibited.*
Virginia	Code 1936, c. 185A secs. 4722 (5) *et seq.*	"Trade or business," "Merchandise or commodities," "Merchandise, products or commodities," "Article, thing or commodity of merchandise, produce, business or commerce intended for sale, barter, use, engagement or consumption in the state," "Any article or commodity or an article of trade, use, merchandise, commerce or consumption."

State	*Reference*	*General Application*
Virginia	sec. 4722 (21)	Combinations which would have been illegal under laws of United States, had commerce been interstate instead of intrastate.
Washington	Constitution, Art. XII, sec. 22	"Any product or commodity."
	Remington's Revised Sts., 1932	
	sec. 2382	"Trade or commerce."
	secs. 2333-1 *et seq.*	Collusive bids on public works or improvements.
	sec. 7076	*Same as Oregon provision.*
	sec. 7158	*(Companies engaging in "Rate wars" not to charge back to agents any part of their commissions.)*
West Virginia	Code 1937	"Agricultural products."
	sec. 1916	"Necessities of life."
	sec. 6112	
Wisconsin	Statutes, 1939	Trade or commerce.
	secs. 133-01—133-08	"Any commodity in general use," "Any product, commodity, or property of any kind."
	secs. 133-17—133-27	
Wyoming	Revised Statutes, 1931	"Any commodity in general use,"
	117-201 *et seq.*	"Commodity or manufacture," "Goods."

EXHIBITS AND SCHEDULES OF THE CASUALTY ANNUAL STATEMENT BLANK

BY

THOMAS F. TARBELL

The paper entitled "Casualty Insurance Accounting and the Annual Statement Blank," originally contained in *Proceedings,* Volume XV, Page 141, and revised and reprinted in Volume XXVII, Page 294, deals with the most important sections of the annual statement blank from the financial standpoint, namely, Income and Disbursements, Assets and Liabilities and the Underwriting and Investment Exhibit. The present paper, which is also a revision of the paper under the same title, originally prepared by the writer and appearing in "*Proceedings,* Volume XVI, Page 131," deals with the various exhibits and supporting schedules of the blank* from the accounting point of view.

The exhibits and schedules herein described fall naturally into four groups:

Exhibits

Exhibit of Premiums (Written and in Force).

Recapitulation (of Premiums in Force).

Business in (State) during the year.

Miscellaneous Schedules

Special Deposit Schedule.

Schedule of All Other Deposits.

Schedule E—Reinsurance Recoverable.

Schedule T—Premiums Written by States and Territories.

* All references, except as hereinafter noted, are to the "Association Edition" blank for 1940. Since changes in the blank are made yearly, item number references may change in future editions.

Investment or Asset Schedules

Schedule A—Real Estate.
Schedule B—Mortgage Loans.
Schedule C—Collateral Loans.
Schedule D—Bonds and Stocks.
Schedule N—Bank Balances.
Schedule X—Unlisted Assets.

Underwriting and Reserve Schedules

Schedule H—Salvage Recovered.

Schedule G—Development of Unpaid Fidelity and Surety Losses and Claims Outstanding at the end of the seven prior calendar years.

Schedule P—Liabilty and Compensation Loss Reserves, including tests of such reserves as of ends of previous years in the light of developments to the end of the current year.

Schedule O—Test of Loss Reserves (excluding Liability and Compensation) as of end of previous year in the light of developments during the current year.

Supplement to Underwriting and Investment Exhibit—Exhibit of Underwriting Gains and Losses by Lines of Business

The principal purposes of these exhibits and schedules are as follows:

(1) To provide insurance departments with sufficient information to determine if companies are complying with state laws.

(2) To provide insurance departments with sufficient data and details to permit a partial audit of the financial statement, including a check of the adequacy of loss reserves, during the interim between regular periodic examinations which are usually made at intervals of from three to five years.

(3) To afford information for the general public and policyholders, particularly as respects a company's investments.

The exhibits and schedules are taken up individually in the order in which they appear in the statement blank.

Section VI—Exhibit of Premiums—Recapitulation (Page 7)

(See Exhibit 1, Page 93)

Exhibit of Premiums—This exhibit shows the development of gross premiums in force from the beginning to the end of the year.

Gross Business—Columns (1)-(6). The detail of the development of reinsurance ceded premiums is not provided for, the net amount of such premiums in force being entered in Column (7). The difference between Column (6) and Column (7) produces the net premiums in force, Column (8).

The purpose of this exhibit is to furnish a rough check of the correctness of the premiums in force. The accuracy of the unearned premium reserve is dependent upon the correctness of the data in this exhibit and since the unearned premium reserve constitutes, on the average, about 35% of the total liabilities of a company, the importance of this exhibit is obvious.

The exhibit is subject to partial audit as follows:

Column (1) The amounts in this column check with the corresponding amounts in Column (6) of the previous year's exhibit.

Column (2) The amounts in this column check with the amounts in Items 4-20, Column (1), Page 2 of current statement.

Columns(3), (5) and (7) upon which depend the correctness of Columns (6) and (8) are not subject to audit. Column (3) contains the amount necessary to build up the in force premiums on reinsurance assumed for terms less than the terms of the original policies to the full original premiums, since the unearned premium reserve should be based on the premiums for the full term. Column (5) is made up of (a) gross advance or deposit premiums on expired policies; (b) premiums developed by audit (net additional or refund premiums on annual audit policies and earned premiums on periodic audit policies); (c) gross premiums on policies not taken and (d) gross (not return) premiums on policies canceled during the policy period. In general, it will be found that the amounts in Column (5) of the current year's statement will be substantially the same as those in Column (2) of the previous year's statement. This is a very rough and approximate rule and is not applicable where premium volume is rapidly increasing or decreasing or where there are unusual factors present such as a material change in the proportions of one-year and three-year business written. It does, however, furnish a rough check in most instances when applied to all lines combined. In case of Column (7) it will generally be found that the amounts vary according to premium writings. If net reinsurance premiums written increase during a particular year, the amount of reinsurance premiums in force will tend to increase in substantially the same ratio and vice versa. However, as in case of Column (5), this is a very rough and approximate rule and does not always hold.

Recapitulation. This exhibit is a summary of the unearned premium reserve computation. The sums of the amounts in Columns (1), (3) and (5) check with the amounts in Column (6). The amounts in Column (6) check with the amounts in Column (8) of the "Exhibit of Premiums." The sums of the amounts in Columns (2), (4) and (5) check with the amounts in Column (7). The sum of the amounts in Column (7)—Item 35—checks with Item 25, Page 5 of statement.

Although this exhibit shows unearned premium results on a net (gross less reinsurance ceded) premium-in-force basis, it is the general practice of companies to compute the gross and reinsurance unearned premium reserves separately.

There are two methods of computing the unearned premium reserve—the half-yearly method and the semi-monthly method.* Under the first method the reserve under policies running for one year or less is ½ or 50% of the premiums in force and under policies running more than one year the fraction of the unexpired term, assuming all policies to have been issued in the middle of the year. Using policies issued for the period of three years, for example, the unearned premium reserve factors are:

Policies issued in current year—5/6ths
" " one year prior 3/6th or ½
" " two years prior 1/6th

Under the second method the reserve is computed for each month of issue (or expiration), assuming all policies to have been issued in the middle of the month. The unearned factors for one year policies are:

December issues—23/24ths
November issues—21/24ths

January issues —1/24th

In case of three year policies the factors are:

December of current year	71/72nds
November " " "	69/72nds
January of current year	49/72nds
December one year previous	47/72nds
November " " "	45/72nds
January one year previous	25/72nds
December two years previous	23/72nds
November " " "	21/72nds
January two years previous	1/72nd

In case of companies computing the unearned premium reserve by the half-yearly method, the amounts in Column (2) will, of course, be one-half the amounts in Column (1). No check can be applied to Column (2) in case of companies computing the

* The semi-monthly method is sometimes referred to as the pro rata method.

unearned premium reserve by the semi-monthly method. The reserve on December 31st will be greater or less than fifty per cent., according to whether a larger proportion of business is written in the second or first half of the year. In most cases, however, the total of Column (2) will be less than one-half the total of Column (1) since in case of compensation and the automobile lines the proportion of business written in the first half of the year is greater than the proportion written in the second half of the year.

Column (4) is not subject to check. In general, the amounts in Column (4) will approximate one-half the amounts in Column (3) regardless of whether the unearned premium is computed by the half-yearly or the semi-monthly method. However, many exceptions are found to this rule and no reliable check is available without referring to original unearned premium records.

Exhibit of Premiums Written and Losses Paid (Page 10)
Business in . . . during the year

(See Exhibit 2, Page 94)

This exhibit has no reference to nor does it check with any part of the financial statement. It is merely a statement of business transacted during the year in the particular state to which report is being made. The requirements of the various states are not uniform as respects the basis of compiling this exhibit. The Association form (reproduced), used by most states, provides for premiums on (1) Direct Writings, (2) Reinsurance Assumed, and (3) Reinsurance Ceded; also, Net Dividends to Policyholders. Losses, however, provide for a combination of (1) Direct Business and (2) Reinsurance Assumed (less salvage), Reinsurance Ceded only being separated. The three way division of premiums is to provide a check of taxable premiums between this exhibit and the Premium Tax form. At the present time the laws of most states provide for the collection of taxes on the basis of Direct Writings. A few states require the compilation of the exhibit on the basis of written premiums and incurred losses.

Special Deposit Schedule (Page 11)

As a condition precedent to receiving authority to transact business, certain states require that a deposit of securities* be made with a designated state official for the exclusive benefit of policyholders (and creditors) in the particular state. This schedule contains a description and other details of securities so deposited. It has no direct bearing upon the financial statement and is not of sufficient importance to justify its reproduction.

Schedule of All Other Deposits (Page 11)

As a condition precedent to receiving authority to transact business, certain states require that a company must have a deposit of a certain amount in the form of approved securities with the proper official of its home state or some other state for the benefit of all policyholders (and creditors). United States branches of foreign companies are required to make similar deposits in some state in lieu of capital. The foregoing types of deposits are known as general deposits. As in the case of special deposits, they have no direct bearing upon the financial statement and, accordingly, the schedule is not reproduced.

Schedule A (Pages 12 and 13)

(See Exhibit 3, Page 95)

This schedule consists of three parts as follows:

Part 1—Real estate owned at the end of the year (including summary by state and foreign country)

" 2—Real estate acquired (including additions and improvements) during the year

" 3—Real estate sold (including payments on "sales under contract") during the year

The schedule as a whole balances between years according to the formula stated at the end of the schedule.

* In lieu of a deposit of securities some states permit the filing of a corporate surety bond.

In addition to the general balance of the schedule, Part 3 balances as follows: The difference between the book value at date of sale and consideration received on sale equals the net profit or loss on sale, as the case may be.

In most instances the descriptions at the heads of the various columns are self-explanatory.* The following explanations and comments may be helpful to a clearer understanding of some parts of the schedule and some of the problems met with in practice in compiling the same.

Part 1

Column (5): This column (actual cost) shows the gross cost, including encumbrances assumed, if any.

Column (17): There is some uncertainty as to just what the description (rental value of space occupied by company) contemplates. Most companies report the amount actually charged during the year to agree with the amount included for company occupancy in Item 29, Page 2. However, it would seem more logical to report the annual rental charged itself by the company as of the end of the year. This amount may or may not check with the amount included in Item 29, Page 2.

It should be noted that the amounts for company occupancy included in Items 29, Page 2, and 38, Page 3, will not agree since a portion of the rent expense is included in disbursement items other than Item 38, particularly in Items 18-24, 36 and 37 (See *Proceedings*, Vol. XXVII, Pages 308 and 309).

Part 2

Column (5): *Cost to Company during the year.* This column calls for gross cost to company of real estate as it stands at date, or dates, of purchase, *i.e.*, the cost of the land, if unimproved, or cost of land and improvements, if improvements exist at date of purchase, including, of course, cost of acquiring title. It should

* Column numbers are not contained in Schedules B and C as printed in the association annual statement blank but for convenience of reference have been included in these schedules as reproduced in this paper.

not include any amounts expended for additions and permanent improvements subsequent to date of acquiring title.

Column (6): *Amount expended for Additions and Permanent Improvements during the year.* This column calls for amounts expended during year for additions and permanent improvements made subsequent to acquiring title and which are charged to capital (asset) account. Ordinary repairs and expenses charged to expense account should not be reported in this column, but in Column (15) "Expended for taxes, repairs and expenses," of Part 1.

Column (7): *Book Value December 31 of current year, less encumbrances.* There is some uncertainty as to just what purpose this column serves, but it is probably intended to show by a comparison between cost and book value, whether or not adjustments of capital (asset) value are reasonable.

In filling out this column, only the book value corresponding to that portion of the real estate appearing on this part of the schedule should be considered. For example, if the transaction indicated on the schedule consists of capitalized permanent improvements, only the book value of the permanent improvements should be entered and not the total book value of the parcel.

Part 3

Where profit or loss adjustments are made to bring the book value to the sale price, the amount to be entered in the "Book value at date of sale" column is the book value after the profit or loss adjustments have been made, *i. e.*, the sale price.

Where sale is made subject to existing encumbrances, the amount to be entered in the "Amount received" column is the sale price less the existing encumbrances.

Where, however, a sale is made of unencumbered real estate, the company taking a mortgage as part payment, the amount to be entered in the "Amount received" column is the gross sale price.

Sales under contract, while not of frequent occurrence, are very often incorrectly reported in the schedule. Where the agreed sale price and book value are the same, no complications arise.

A pro rata amount is entered in the "Cost to company" column, and the amount of the payment in both the "Book value" and "Amount received" columns. Where the agreed sale price and book value differ, two methods of accounting are open.

It may be assumed that there is a proportionate profit or loss with each payment or it may be assumed that no profit or loss is to be considered until the final payment has been made.

In the first case, pro rata amounts of the cost and book value should be entered in the appropriate columns and the amount of the payment in the "Amount received" column. A pro rata profit or loss, according to whether the agreed sale price is more or less than the book value, will be shown in the profit or the loss column. In the second case, the amount of the payment (except for the final payment) should be.entered in all three columns: "Cost," "Book value" and "Amount received." Proper adjustments of the amounts in the "Cost" and "Market value" columns of Schedule A, Part 1, should be made depending upon the accounting method adopted. See also "Addendum," Page 91.

Checks between various data in the schedule and certain items of the financial statement follow:

The total of Column (6), Part 1—Book value, less encumbrances—checks with Item 1, Page 4.

The difference between Columns (6) and (7)—Market value less encumbrances—Part 1, checks with Item 39 or Item 52, Page 4.

The sum of the totals of Column (8), Part 1 and Column (5), Part 3—Increase by adjustment in book value during year—checks with Item 39(a), Page 2.

The sum of the totals of Column (9), Part 1 and Column (6), Part 3—Decrease by adjustment in book value during year—checks with Item 61(a), Page 3.

The sum of the totals of Column (14), Part 1 and Column (11), Part 3—Gross income less interest on encumbrances—checks with Item 29, Page 2.

The sum of the totals of Column (15), Part 1 and Column (12), Part 3—Expended for taxes, repairs and expenses during year—checks with Item 48, Page 3.

Schedule B (Page 14)

(See Exhibit 4, Page 96)

The schedule proper shows "all mortgage loans owned December 31 of current year, and all mortgage loans made, increased, discharged, reduced or disposed of during the year." In addition, there is provided a recapitulation or classification of loans by state and foreign country.

The schedule balances between years as follows:

Amount unpaid December 31st of previous year—Column (8).................. $__________

Add: Amount loaned during year—Column (9).. __________

Total.......................... $__________

Deduct: Amount paid on account or in full during year —Column (10)...................... $__________

Difference—equals amount unpaid December 31st of current year—Column (11).... $__________

The various checks between the schedule and the financial statement follow:

The total of Column (8)—Amount unpaid previous year—checks with the total of Column (11) of the previous year's statement and also with Item 2, Page 4 of the previous year's statement.

The total of Column (11)—Amount unpaid current year—checks with Item 2, Page 4.

The totals of Columns (14) and (15)—Interest due and accrued —check with the respective amounts in Item 33, Page 4.

The total of Column (17)—Paid for accrued interest—checks with the inside amount of Item 22, Page 2.

The total of Column (16)—Gross interest received—less the total of Column (17)—Paid for accrued interest—checks with the extended amount of Item 22, Page 2.

As a rule, no difficulty is experenced in preparing this schedule. Where foreclosure is taken on a mortgage, mortgage loans account is credited with the amount of the mortgage and interest on mortgage loans with the amount of interest due, the corresponding debit being to real estate account. Occasionally a mortgage is sold or a compromise settlement accepted for less than the face amount. In such event, the face amount of the mortgage should be entered in the "Amount paid" column, as the schedule makes no provision for profit or loss, and a footnote added showing the details. The net loss should be entered in Item 60(*d*), Page 3, as follows:

Gross Loss on Sale or Maturity of Ledger Assets, Viz.:
(*d*) *Mortgage Loans*

Schedule C (Pages 15 and 16)

(See Exhibit 5, Page 97)

This schedule consists of three parts as follows:

Part 1—Collateral loans in force at end of year.
" 2—Collateral loans made during the year.
" 3—Collateral loans discharged in whole or in part during the year.

Provision is made in each part of the schedule for a record of all changes in collateral during the year. The purpose of this requirement is to show whether or not the collateral security was adequate at all times.

The schedule balances between years as follows:

Amount loaned December 31st of previous year .... $__________
Add: Amount loaned during the year, Part 2—Column (6)........................ $__________
Total........................ $__________
Deduct: Amount repaid during the year, Part 3—Column (6)........................ $__________
Difference—equals amount loaned December 31st, current year.................... $__________

The various checks between the schedule and the financial statement follow:

The total of Column (6), Part 1—Amount loaned—checks with Item 3, Page 4.

The totals of Columns (10) and (11), Part 1—Interest due and accrued—check with the respective amounts of Item 34, Page 4.

The sum of the totals of Column (12), Part 1 and Column (10), Part 3—Interest received—checks with Item 23, Page 2.

The preparation of this schedule presents no particular difficulties. In case a borrower defaults and the sale of the collateral does not realize a sufficient amount to pay off the loan, the loss should be shown in the manner indicated for showing the loss under a mortgage loan.

Schedule D (Pages 17, 18, 19 and 20)

(See Exhibit 6, Page 98)

This schedule consists of five parts as follows:

Part 1—Bonds owned at the end of the year.
" 2—Stocks owned at the end of the year.
" 3—Bonds and stocks acquired during the year.
" 4—Bonds and stocks sold, redeemed or otherwise disposed of during the year.
Summary of bonds and stocks by classification.

The schedule as a whole, balances between years according to the following formula:

	Book Value December 31st of previous year			$
Add:	Profit on sales,	Part 4............		
	Increase by adjustment,	Part 1............		
	Increase by adjustment,	Part 2............		
	Increase by adjustment,	Part 4............		
	Cost of acquirals,	Part 3............		
	Total........................			$
Deduct:	Loss on sales,	Part 4..	$	
	Decrease by adjustment,	Part 1..		
	Decrease by adjustment,	Part 2..		
	Decrease by adjustment,	Part 4..		
	Consideration received on sales,	Part 4..		$
	Difference — equals book value December 31st current year...........			$

Part 4 of the schedule balances as follows: The difference between the book value at date of sale and consideration received on sale equals the net profit or loss on sale, as the case may be.

The following are the various checks between the schedule and the financial statement:

The total of Column (4), Part 1 checks with Item 4 (bonds), Page 4.

The total of Column (4), Part 2 checks with Item 4 (stocks), Page 4.

The difference between the total of Column (4), Part 1 (book value) and the total of Column (7), Part 1 (market value), or of Column (16), amortized value, checks with Item 40, or Item 53, Page 4.

The difference between the total of Column (4), Part 2 (book value), and the total of Column (6), Part 2 (market value), checks with Item 40A, or Item 53A, Page 4.

The total of Column (9), Part 1—Interest due and accrued—checks with the extended amount of Item 35, Page 4.

The total of Column (7), Part 3—Paid for accrued interest—checks with the inside amount of Item 24, Page 2.

The sum of the totals of Column (9), Part 1, Column (8), Part 2, and Columns (13) and (14), Part 4—Gross interest and dividends received—less the total of Column (7), Part 3 checks with the extended amount of Item 24, Page 2.

The sum of the totals of Column (10), Part 1 and the bond portion of Column (9), Part 4—Increases by adjustment—checks with Item 39(b), Page 2.

The sum of the totals of Column (9), Part 2 and the stock portion of Column (9), Part 4—Increases by adjustment—checks with Item 39(c), Page 2.

The sum of the totals of Column (11), Part 1 and the bond portion of Column (10), Part 4—Decreases by adjustment—checks with Item 61(b), Page 3.

The sum of the totals of Column (10), Part 2 and the stock portion of Column (10), Part 4—Decreases by adjustment—checks with Item 61(c), Page 3.

The bond portion of Column (11), Part 4 checks with Item 38(b), Page 2.

The stock portion of Column (11), Part 4 checks with Item 38(c), Page 2.

The bond portion of Column (12), Part 4 checks with Item 60(b), Page 3.

The stock portion of Column (12), Part 4 checks with Item 60(c), Page 3.

The schedule summary is of no particular consequence and is inserted primarily for the convenience of insurance departments, some of which print this summary in lieu of a complete list of security holdings.

Columns (13)-(18), Part 1, apply to companies which value bonds on the amortization basis. The headings of Columns (13) and (14) are self-explanatory. Column (15) provides for showing the effective rate of interest at which purchase was made. This rate depends upon the normal coupon rate, the period to maturity and the purchase price (see Vol. XXVII, Pages 304 and 312). Column (16) calls for the amortized or investment value as of December 31 of the current year. Columns (17) and (18) provide for the accrual of discount increases or the amortization of premium decreases during the year. The increases and decreases reported in Columns (17) and (18) are, as a rule, also included in Columns (10) and (11). These latter columns also include increases or decreases made for any other purpose (such as increases or decreases to adjust the book values up or down to the market values in case of bonds not subject to amortization, *i. e.*, perpetual bonds, bonds in default as to principle or interest, bonds not amply secured or otherwise not qualifying for amortization).

The total of Column (17), Part 1, plus the amount of accrual of bond discount included in Column (9), Part 4, checks with the inside amount of Item 39(b), Page 2.

The total of Column (18), Part 1, plus the amount of amortization of bond premium included in Column (10), Part 4, checks with the inside amount of Item 61(b), Page 3.

The amounts shown in Column (16), Part 1, are the amortized values for bonds qualifying for amortization and the market values for bonds not so qualifying. The amounts shown in Column (4), book value, may or may not agree with the amounts shown in Column (16), depending upon whether or not a company adjusts its book values to the amortized (and market) values included in Column (16). If a company does so adjust its book values, no amounts appear in Items 40 or 53, Page 4.

In general, the column headings of the various parts of the schedule not previously commented upon are self-explanatory and require no material elaboration.

In case of Column (8), Part 2 (dividend rates) the rates to be entered are the annual rates of dividend (or annual amounts per share on stock of no par value) paid during each of the last three years that the company has held the stock. In case of a stock purchased during the period the full annual rate or amount should be entered for the year of purchase, even though the company actually received dividends for only a fraction of the year.

In case of Column (8), Part 4 (book value at date of sale), if profit or loss adjustments are made to bring the book value to the sale price, the amount to be entered is the book value after the profit or loss adjustments have been made, *i. e.*, the sale price.

Infrequent and unusual transactions sometimes present questions as to the proper reporting of the same in the various parts of the schedule, keeping in mind that the schedule must always balance between years according to the formula set out on Page 72. The following comments cover the schedule entries for such transactions as are most generally met with in practice:

Stock Dividends. The accounting for dividends received in the form of stock or other securities should conform with Federal Income Tax requirements. Such receipts are considered as dividends to the extent that they constitute income to the shareholders. The distinction between such dividends which constitute income and those which do not constitute income and the manner of accounting for the same are contained in "Regulations 103, Income Tax, Internal Revenue Code," Sections 19.115-7 *et seq.* Briefly, the income, if any, should be treated as dividends received and entered in Part 2 of the schedule. The amount to be entered in Columns (7), actual cost, and (8), dividends received, will be the amount determined as constituting income. If no income is involved, no amounts should be entered in Columns (7) and (8). The transaction should also be entered in Part 3. In Column (3), name of vendor, the notation "Stock Dividend" should be entered. In Column (5), cost to company, the amount of income, if any, should be entered, or if no income is involved "0" should be entered.

Sale of Rights. The total proceeds from sale of stock rights do not represent profit. The major portion of the proceeds represents a return of capital and the profit or loss is usually a comparatively small amount. The actual profit or loss should be determined in accordance with the method outlined in "Regulations 103, Income Tax, Internal Revenue Code," Sections 19.22(a)-8. The transaction should be included in Part 4 of the schedule. The proceeds should be entered in Column (5), consideration. The cost, as determined by the "Regulations," should be entered in Column (7), the book value in Column (8) and the profit or loss in Column (11) or Column (12). If the cost and book values of the original security are not the same, the statement profit or loss will be different from the Federal Income Tax profit or loss, since the statement profit or loss is based upon the book value and the Federal Income Tax profit or loss on the cost. The two amounts can be brought into agreement by a profit or loss adjustment in the book value to bring the book value back to the actual cost. If this is done, the book value adjustment would be reflected in Column (9) or Column (10) of Part 4.

Transfers to Schedule X. The approved method of treating transfers to Schedule X—Unlisted Assets (see Page 87)—is to decrease the book value to "0" by profit and loss entry. The usual entries are made in Part 4 of the schedule, "0" being entered in the consideration and book value at date of sale columns; the date charged off in the date sold column; and the notation "Transferred to Schedule X" in the name of purchaser column.

Transfers from Schedule X. Transfers from Schedule X must pass through Part 3. The following entries should be made:

The usual entries will be made in the description and par value columns; the date of transfer in the date acquired column; the notation "Transferred from Schedule X" in the name of vendor column and "0" in the cost to company column. An increase by adjustment must be made in Part 1 to establish the book value; also the original cost should be entered in the actual cost column of Part 1.

Receipts in Form of Securities. Receipts are not always in cash but sometimes consist of securities. This frequently happens where reinsurance of all the outstanding risks of a company is effected. In such cases the value fixed upon the securities should be considered as the purchase price and properly entered in Schedule D, Part 3, in case of the accepting company, or as the sale price and properly entered in Schedule D, Part 4, in case of the ceding company.

A similar rule would apply to any securities received as salvage. The fair market value would be reported as salvage received—Items 1-17, Column (2), Page 3—and such value entered in the "Cost to Company" column of Schedule D, Part 3, since the transaction (from an accounting standpoint) is exactly the same as if the company received the amount of cash and immediately invested it in the security in question.

Exchange of Securities. Exchanges of securities may arise from pure "swaps" carried out through a broker, but more frequently result from "reorganizations." The schedule accounting procedure in general is as follows:

Part 4—The book value of the old securities at the date of exchange should be considered as the sale price.

Part 3—The book value of the old securities at the date of exchange, minus the cash received or plus the cash paid, if any, should be considered as the purchase price (cost to company) of the new securities and the book value for Part 1.

Note that the foregoing assumes no profit or loss involved in the transaction. This will be the situation in most instances. The rule, however, does not apply if a book profit or loss is involved, and in such rare instances each transaction must be handled in accordance with the circumstances.

Where bonds are exchanged for part bonds and part stock, an apportionment of the book value of the old securities (bonds) will be necessary for determining the respective costs of the new securities (bonds and stocks), taking into consideration also any cash received or paid in connection with the exchange. No fixed rule can be given. In some instances stock received on reorganization represents potential future value only, and where this is the case it is a question of whether or not the new stock should be assigned any book value or cost. Each transaction must be considered on its merits.

"Stock Split-Ups." Where stock of a certain (or no) par value is exchanged for a larger number of shares of the same class of stock of a smaller (or no) par value, the transaction should be carried through Parts 3 and 4 of Schedule D, treating the book value at the date of exchange as the sale price for Part 4 and the purchase price for Part 3. As the change is one of form only, no profit or loss on sale should be considered and on Part 2 of the schedule the amount to be entered in the cost to company column should be the original cost of the stock.

Schedule E—Reinsurance Recoverable on Paid and Unpaid Losses—(Page 21)

(See Exhibit 7, Page 99)

The headings of this schedule are self-explanatory. Checks with the financial statement are as follows:

The total of Column (1) checks with "Reinsurance recoverable on paid losses" as reported in lines 28-31 or 42-43, Page 4, depending upon whether such reinsurance is carried as a "ledger" or a "non-ledger" asset.

The total of Column (2) checks with Item 15, Column (3), Page 5. See "Addendum," page 92.

Schedule G—Development of Unpaid Fidelity and Surety Losses and Claims—(Page 22)

(See Exhibit 7, Page 99)

This schedule shows the developments to date of unpaid losses and claims outstanding as of the ends of the seven calendar years prior to the year of statement. Its purpose is to indicate whether or not a company is maintaining adequate loss and claim reserves for these lines of business. The test for any particular year's reserve consists of comparing the total of the amount paid to date plus the present (current year) liability or reserve with the reserve as of December 31st of the year under consideration.

For example, to determine the adequacy of the reserve as of December 31, 1933, in view of subsequent developments the total amount paid during the period 1934-1940 on losses and claims outstanding December 31, 1933, plus the liability or reserve on such losses and claims still unpaid December 31, 1940, is compared with the liability or reserve set up as of December 31, 1933.

The schedule is based upon known losses and claims outstanding, *i. e.*, excludes reserves for losses and claims incurred but not reported.

The amounts in Column (2) of the schedule (net losses and claims unpaid December 31 of each calendar year) check with the amounts in Items 5 and 6, Column (4), Page 5 of the respective calendar year statements.

Schedule H—Salvage—(Page 22)

(See Exhibit 7, Page 99)

This schedule provides for showing gross cash salvage received during the calendar year, according to the following sub-divisions:

(a) On losses incurred and paid in the current year.

(b) On losses incurred in previous years but paid in the current year.

(c) On losses incurred and paid in previous years.

The total gross salvage received checks with Items 1-17, Column (2), Page 3 of statement.

Schedule N (Page 23)

This schedule shows the bank balances in each of the Company's depositories (according to the books of the company) at the end of each month of the calendar year, divided between "Open Banks or Trust Companies" and "Suspended Banks or Trust Companies" (See Item 51, Page 4 of statement); also the rate of interest on each account and the amount of interest received during the year. It is not an important schedule and is not reproduced. The amount of interest received checks with Item 25, Page 2 of statement. The total of deposits in suspended banks as of December 31 checks with the sum of the extended and inside amounts of Item 51, Page 4 of statement.

SCHEDULE P (PAGES 24, 25, 26, 27 AND 28)

The make-up of this schedule conforms in general to the requirements of the standard liability and compensation loss reserves laws (including the New York Insurance Law, Section 326, sub-sections 3-6).

This schedule is divided into eight parts as follows:

Part 1—Liability (including automobile) loss reserve (including distribution of unallocated claim expenses for companies which have been issuing policies five years or more).

" 1A—Schedule of automobile liability experience (including distribution of unallocated claim expenses for companies which have been issuing policies five years or more).

" 2—Compensation loss reserve (including distribution of unallocated claim expenses for companies which have been issuing policies four years or more).

" 3—Distribution of unallocated liability (including automobile) claim expenses for companies which have been issuing policies less than five years.

" 3A—Distribution of unallocated automobile liability claim expenses for companies which have been issuing policies less than five years.

" 4—Distribution of unallocated compensation claim expenses for companies which have been issuing policies less than four years.

" 5—Development of incurred liability losses.

" 5A—Development of incurred compensation losses.

Parts 1, 2 and 5 only are reproduced. (See exhibits 8, 9 and 10, pages 100, 101 and 102.)

Part 1

The headings of the various columns are self-explanatory with the possible exception of Column (12), "Total estimated reserve for liability losses; case-basis." There is a question as to whether or not the reserves in this column should include provision for unpaid allocated and unallocated claim expense. Strictly speaking, there can be no case-basis unallocated claim expense. However, since the reserve on the prescribed formula basis for the three most recent policy years is predicated upon an arbitrary loss ratio of 60%, including loss and both allocated and unallocated claim expense, it is reasonable to assume that Column (12) could be interpreted to embrace both allocated and unallocated claim expense.

The various checks to which this part of the schedule is subject are as follows:

The difference between the totals of Column (1) of the current and previous year's schedules checks with the sum of Items 7 and 8, Column (5), Page 2 of the current year's statement.

The difference between the total of Column (1) and the unearned premium reserve—sum of Items 22 and 23, Column (7), Page 7—checks with the total of Column (2).

The difference between the totals of Column (3) of the current and previous year's schedules checks with the sum of Items 4 and 5, Column (5), Page 3 of the current year's statement.

The amounts in Columns (4) and (5) of the schedule do not check individually with the financial statement, since no division between allocated and unallocated claim expense is called for on Page 3. The calendar year unallocated claim expense is, however, shown separately at the bottom of Part 1, or on Part 3, where it is distributed to policy years upon the percentages prescribed in the liability loss reserve laws. Deducting the calendar year unallocated claim expense from the total liability claim expense included in Item 20, Page 3 of statement produces the calendar year allocated claim expense, included in Column (4) of the schedule. This permits the checking of Columns (4) and

(5) between years similar to the check applied to Columns (1) and (3). In case of Column (6) the difference between the totals of Column (6) of the current and previous year's schedules checks with the total liability loss expense included in Item 20, Page 3 of the current year's statement.

The sections providing for the computation of the reserve and the policy year distribution of unallocated claim expenses require no particular comments.

Part 1A

This part, embracing automobile liability business only, is identical with Part 1 as respects the schedule of experience and the policy year distribution of unallocated claim expense and is subject to the same general checks. No section is provided for computation of reserve. The reserve computation would have no particular significance, since the statement reserve is computed upon the total liability (including automobile) business. If separate reserves were computed for each division (automobile and other liability) the aggregate of the two individual reserves would not necessarily equal the reserve computed upon the total liability business. This is due to the fact that in Schedule P—Part 1 for the group of policy years prior to the three most recent years the greater of the suit liability (Column 11) or the estimates reserve (Column 12) is used and for each of the three latest years the greater of the remainder reserve (Column 17) or the estimates reserves (Column 18) is used. If this calculation were applied to each line individually there would be the possibility that the sum of the resulting reserves for the individual lines would amount to more than the reserve calculated on the basis of the combined lines.

This part of the schedule is of no value as respects the calculation of the liability loss reserves, but it serves as an exhibit of the automobile liability policy year experience and shows the estimates reserves for this line and the policy year loss ratios, including loss expense, on the basis of these reserves. By subtracting the figures shown in Part 1A from the corresponding figures in Part 1 it is possible to obtain the estimates reserves and the policy year experience for the liability other than auto line.

Part 2

The various checks to which this part of the schedule is subject are similar to those to which Part 1 is subject and are as follows:

The difference between the totals of Column (1) of the current and previous year's schedules checks with Item 9, Column (5), Page 2 of the current year's statement.

The difference between the total of Column (1) and the unearned premium reserve—Item 24, Column (7), Page 7—checks with the total of Column (2).

The difference between the totals of Column (3) of the current and previous year's schedules checks with Item 6, Column (5), Page 3 of the current year's statement.

As in the case of Columns (4) and (5) of Part 1, the amounts in Columns (4) and (5) of this part do not check individually with the financial statement. The calendar year unallocated claim expense is shown separately at the bottom of Part 2, or on Part 4, and distributed to policy years upon the percentages prescribed in the standard compensation loss reserve laws. This permits the checking of Columns (4) and (5) between years similar to the check applied to Columns (4) and (5) of Part 1. In case of Column (6) the difference between the totals of Column (6) of the čurrent and previous year's schedules checks with the total loss expense included in Item 20, Page 3 of the current year's statement.

The sections providing for the computation of the reserve and the policy year distribution of unallocated claim expenses require no particular comments.

Parts 3, 3A and 4

These three parts of the schedule as previously mentioned show the distribution of calendar year unallocated claim expenses to policy years for liability (including automobile), automobile liability and compensation respectively for companies which have been transacting the lines in question less than five years in case of liability and less than four years in case of compensation. If these schedules are applicable, the total current calendar year's unallocated liability claim expense included in Part 3 checks with the difference between the grand totals of Column (5) of Part 1 of the current and prior year's schedules. A similar check applies to Part 3A and Column (5) of Part 1A. The total current calendar year's compensation unallocated claim expense included in Part 4 checks with the difference between the grand totals of Column (5) of Part 2 of the current and prior year's schedules.

Parts 5 and 5A

These parts of the schedule are designed to furnish a test of the adequacy or accuracy of a company's reserves on the individual estimates basis (including or excluding reserves for allocated loss expense, depending on the basis used by the individual company), by comparing groups of incurred losses at a particular reserve date with the corresponding incurred losses developed to subsequent reserve dates.

The incurred losses are grouped by policy year and accident year. Losses with year of accident in the year of issue are "developed" for five years and those incurred in subsequent calendar years for four years.

No check between incurred losses contained in Part 5, or Part 5A, and those contained in Part 1, or Part 2, can be made as respects losses incurred in the calendar year of issue. However, in the case of companies which divide three year term business into three separate policy years, checks can be made by policy year between the respective parts of the schedule, as follows:

The sum of the incurred losses for policy year 1935, accident years 1935 and 1936, contained in Part 5, or Part 5A, for reserve dates Dec. 31, 1936 to Dec. 31, 1940 will check with the policy year 1935 incurred losses as contained in Part 1, or Part 2, of the annual statements for the corresponding calendar years. Expressed somewhat more concisely and using liability as an example—the sum of incurred losses, policy year 1935, accident years 1935 and 1936, reserve date Dec. 31, 1936, 1937, 1938, 1939 and 1940 as contained in Part 5, checks with the sum of Columns (3), (4) and (12), or sum of Columns (3) and (12), for policy year 1935, Part 1 of the annual statement for the corresponding calendar years. Similar checks can be made for policy years 1936, 1937, 1938 and 1939.

At the present time, policy year checks similar to the above cannot be made in the case of the statements of companies which charge all losses under policies running for a period of more than one year to the original policy year of issue.

Schedule O (Page 29)*

(See Exhibit 11, Page 103)

Part 1 of this schedule is designed to test by lines of business (excluding liability and compensation) the adequacy of loss and claim reserves set up in the previous year's statement viewed in the light of developments one year later—as of the date of the current year's statement. For lines other than fidelity and surety the test is made upon the basis of the total loss reserve (the reserve for known claims plus the estimated reserve for incurred but not reported claims). In case of fidelity and surety the test is made upon the basis of the loss reserve for known claims only.

The schedule contains some data which is not essential to producing the results desired but which is incorporated for purposes of check and audit with the financial section and other schedules.`

Briefly, the rationale of the test is as follows: The excess or deficiency in reserve, Column (11), is equal to the difference between (a) the reserve at the end of the previous year, Column (10), and (b) the sum of the amount paid during the current year on previous years' claims, Column (2) and the loss reserve on previous years' claims still outstanding at the end of the current year, Column (6); or to summarize algebraically:

Column (11) = Column (10) — [Column (2) + Column (6)]

The preparation of the schedule requires the maintenance of certain special statistical records which it may be of interest to note.

Gross amount paid for losses must be divided as follows:

(a) on losses incurred in previous years.

(b) on losses incurred in the current year.

* The schedule reproduced is that which will be incorporated in the 1941 statement blank. Part 1 of the schedule contains the same essential information as contained in the schedule in the 1940 blank, the principal changes being the elimination of superfluous information and a rearrangement of columns. Part 2 is new in 1941.

Reinsurance recovered during the current year must be subdivided as follows:

(a) on losses incurred in the current year and paid in the current year.

(b) on losses incurred in previous years but paid in the current year.

(c) on losses incurred in previous years and paid in previous years.

Salvage recovered during the current year must be subdivided in the same manner as reinsurance. This subdivision of salvage is also required for Schedule H as brought out on Page 79.

The schedule is subject to the following checks with the financial section and other schedules.

Column (10) checks by line with Items 2-14, Column (6), Page 5 of the previous year's statement except for fidelity and surety where the check is with Column (4).

It follows that Column (10) in case of fidelity and surety checks with the amounts shown in Column (2) of Schedule G of the current year's statement as outstanding at the end of the previous year.

Column (5) checks by line with Items 1-3 and 7-16, Column (5), Page 3 of statement.

It follows that Column (2) in case of fidelity and surety checks with Column (3) of Schedule G of the current year's statement with respect to losses and claims unpaid December 31 of the previous year.

Column (6) in case of fidelity and surety checks with the amounts shown in Column (4) of Schedule G with respect to the immediately preceding calendar year.

Column (8) checks by line with Items 2-14, Column (6), Page 5 of the current year's statement except for fidelity and surety where the check is with Column (4).

It will be noted that Column (4) does not enter into the determination of the adequacy of the loss reserve—Column (11)—but is incorporated for checking purposes only; Column (5) which equals Column (2), plus Column (3), minus Column (4) checks with Items 1-3 and 7-16, Column (5), Page 3 of statement. While the salvage and reinsurance recovered during the current year included in Column (4) does not apply to losses outstanding at the end of the previous year, it is, nevertheless, an undisclosed credit as of such date and should logically be considered in determining the true status of the loss reserve at such date. In other words, the true excess or deficiency in reserve should be measured, not by Column (11) but by Column (11) minus Column (4).

Part 2 provides for the development of non-cancellable accident and health incurred losses by year of accident for a period of two years beyond the year of statement. This part is similar in principle to Schedule P, Parts 5 and 5A.

Since this part is restricted to the development of losses occurring in only the four most recent accident years, no check with Column (11) of Part 1 can be made, since Column (11) is based upon all prior years of accident. The only check between the two parts is as follows; the sum of Column (3) and Column (7) of Part 1 equals the amount of incurred losses as of December 31 of the current year included in Part 2.

Schedule X—Unlisted Assets (Page 30)

This schedule provides for showing the details of "all property owned by the company or in which it had any interest, on December 31st of current year, which is not entered on any other schedule and which is not included in the financial statement for the current year"—*i. e.*, property or assets not carried on the company books. The information is similar to that contained in the various investment schedules (A, B, C and D). In addition, the schedule calls for the reasons for not carrying the property on the books. The schedule is not an important one and, accordingly, is not reproduced.

The schedule, as indicated, is designed to show a record of assets charged off the books of the company as of no or doubtful value, but does not contemplate the inclusion of potential salvage assets.

Occasionally small amounts of income are derived from the assets carried in this schedule. In such cases the income should be reported in the proper item on Page 2 and an appropriate change made in the description of the item. For example, if a dividend is received on a stock carried in this schedule, the income should be included in Item 24, Page 2 and the wording of the item changed to read:

> *"Gross interest on bonds and dividends on stocks, less $.......... accrued interest on bonds acquired during the year, per Schedules D and X."*

Transfers of securities to or from Schedule X have been treated in the consideration of infrequent or unusual transactions involving Schedule D.

Supplement to Underwriting and Investment Exhibit (Page 31)

The sub-title of this exhibit "Exhibit of Underwriting Gains and Losses by Lines of Business," is self-explanatory and the exhibit requires no particular elaboration. Since the allocation of underwriting expenses by lines of business occupies considerable time after the closing of the company books, the filing of this exhibit is not required until April 1 following the year of statement. Companies authorized to transact business in New York State are required to file a similar but more detailed exhibit, "New York Casualty Experience Exhibit" with that state and for such companies the basic data for the "Supplement" is available from the New York exhibit.

Since the Supplement totals balance with the Underwriting Exhibit totals, the incurred losses and consequent loss ratios are based upon the formula loss reserves, rather than upon the individual estimates reserves, for the auto liability, other liability and compensation lines. For this reason the underwriting results for these lines are distorted and of little value. There is also the question of the desirability of including in the underwriting gain or loss the "Gain (or loss) from underwriting profit and loss items." The exhibit is not of sufficient importance to justify its reproduction.

Schedule T—Exhibit of Premiums Written Allocated by States and Territories (Page 32)

This exhibit provides for an analysis of total net premiums written by state and territory for all lines of business combined. Premiums are divided as follows:

Direct writings—Column (1)

Reinsurance assumed from
  Unauthorized companies—Column (2)
  Authorized companies—Column (3)

Reinsurance ceded to
  Unauthorized companies—Column (4)
  Authorized companies—Column (5)

Net premiums—Column (6)

In addition, provision is made for showing net dividends paid or credited to policyholders—Column (7).

The following are the various checks between the schedule, the financial statement and the exhibit of state business:

The sum of the totals of Columns (1), (2) and (3) checks with the difference between Columns (1) and (2) of Item 20, Page 2 of statement.

The sum of the totals of Columns (4) and (5) checks with Column (3) of Item 20, Page 2.

The total of Column (6) checks with Column (5) of Item 20, Page 2.

The total of Column (7) checks with the extended amount of Item 52, Page 3 of statement.

The amount in Column (1) for an individual state checks with Column (1) of Item 17, Page 10 of statement.

The sum of the amounts in Columns (2) and (3) for an individual state checks with Column (2) of Item 17, Page 10.

The sum of the amounts in Columns (4) and (5) for an individual state checks with Column (3) of Item 17, Page 10.

The amount of Column (6) for an individual state checks with Column (4) of Item 17, Page 10.

The amount of Column (7) for an individual state checks with Column (5) of Item 17, Page 10.

The preparation of this schedule involves considerable time following the compilation of other more essential statement records and consequently filing is not required until March 15 following the year of statement.

It is questionable whether this schedule is of sufficient importance to justify its requirement, since for most states all essential information for state premium tax purposes is contained in detail by line of business in the exhibit of state business on Page 10. The schedule is not reproduced.

Addendum

In addition to the revised Schedule O, the following changes, none of which have any material effect upon the text of this or the previous paper (Vol. XXVII, Page 294), will be incorporated in the 1941 statement blank. The changes are taken from the 1941 Report of the Committee on Blanks of the National Association of Insurance Commissioners. The changes applicable exclusively to the casualty blanks are given verbatim. Those applicable to all blanks have been edited to reflect their applications to the casualty blank. The "reasons" stated are taken verbatim from the report.

Pages 2, 3, 4, 5, 6, 7, 10, 29 and 31:

Change "Steam Boiler" to "Boiler" and "Plate Glass" to "Glass" throughout the statement.

Reason: Proposed phraseology more accurately describes these lines of business.

Page 3, line 43, and Page 4, line 47:

Change words "Furniture and Fixtures" to read "Furniture and Equipment."

Reason: To provide a more accurate description.

Page 5:

Change heading "V—Liabilities" to read "V—Liabilities, Surplus, and Other Funds."

Reason: To correspond with Life Blank and to provide recognition of accounts not strictly regarded as liabilities.

Page 9, line 51, and footnote (d):

Change reference (d) to (c) in each case.

Reason: To correct an error.

Page 9, line 75:

Delete printed matter and make this a blank line similar to lines 76 and 77, preceded only by the footnote designation "(a)".

Reason: Inappropriate to require designation of "Gain" or "Loss" as both gains and losses are provided for in separate columns. New line will provide additional space for miscellaneous items.

Page 9, line 87:

Change to read "Per cent of investment expenses incurred to gross interest, dividends and rents earned . . . ."

Reason: In order to include dividends which are already reported as a part of investment earnings.

Schedule A, Part 3:

Append footnote to column headed "Book Value at date of sale less incumbrances" reading as follows:

> "In case of sales under contract, include payments received during current year only, until book value per Part 1 is exhausted."

Also add to double starred footnote referring to "Cost to Company" column the following sentence:

> "In reporting sales under contract, include payments received during the current year only."

Reason: To indicate that "Book Value" and "Cost to Company" should be reduced by payments received or purchase money mortgage taken during the year of report and to secure uniformity of practice.

Schedule D, Part 1:

Put printer's symbol in Column (1) preceding the word "Description" referring to a footnote reading as follows:

> "Where a bond is payable in a foreign currency, the par value payable in that currency should be included as a part of the description."

Reason: To secure necessary information in connection with audit of annual statements.

Schedule E:

Add to subheading in Column (2) the parenthetical expression: "(Exclusive of Liability and Compensation)."

Reason: It is sometimes found upon audit that reinsurance on liability and compensation losses is included in this schedule, thus preventing Column (2) from checking with corresponding item on page 5.

Schedule N:

Eliminate day of month appearing in headings.

Reason: Caption of schedule already indicates that balance is for the last day of each month.

Schedule P, Parts 1, 1A, and 2:

In Columns (4a) and (5a) substitute the word "Percentage" for the word "Ratio."

Reason: In order to have phraseology in headings consistent with Column (8).

Schedule P, Parts 1, 1A, and 2:

In first column delete the words "First period" in first horizontal line and "Second period" in the tenth horizontal line.

Reason: To eliminate unnecessary headings.

Schedule P, Part 2:

Change heading of Column (10) to read: "(f) Amount" and add the following footnote:

> "(f) State maximum rate of interest used in determining present values of future payments ....%"

Reason: Some companies value certain outstanding claims at 3% or 3½% or use no interest discount whatsoever.

EXHIBITS AND SCHEDULES

EXHIBIT 1

Form 3 **ANNUAL STATEMENT FOR THE YEAR 1940 OF THE**..
(Write or stamp name of Company)

VI—EXHIBIT OF PREMIUMS

CLASS	(1) In force Dec. 31, last year, without deducting reinsurance	(2) Written or renewed during the year, per col. 1, page 2	(3) Excess of original premiums over amount received for reinsurance	(4) Total	(5) Deduct expirations and cancellations	(6) In force at the end of the year	(7) Deduct amount reinsured (Schedule F)	(8) Net premiums in force
1. Accident . . .								
2. Health . . .								
3. Non-cancellable accident and health . .								
4. Auto liability. .								
5. Liability other than auto								
6. Workmen's compensation								
7. Fidelity . . .								
8. Surety. . . .								
9. Plate glass . .								
10. Burglary and theft .								
11. Steam boiler . .								
12. Machinery . .								
13. Auto property damage .								
14. Auto collision. .								
15. Property damage and collision other than auto								
16. (a)............								
17. TOTALS . .								

RECAPITULATION

18. †Gross premiums (less reinsurance) upon all unexpired risks, viz:

	(1) Running one year or less from date of policy	(2)	(3) Running more than one year from date of policy	(4)	(5) Advance premiums (100%)	(6) Total premiums per column 8 above	(7) Total unearned premiums
	Premiums	Amount unearned*	Premiums	Amount unearned (pro rata)			
19. Accident							
20. Health							
21. NON-CANCELLABLE ACCIDENT AND HEALTH							
22. Auto liability. . . .							
23. LIABILITY OTHER THAN AUTO . .							
24. WORKMEN'S COMPENSATION . .							
25. Fidelity							
26. Surety.							
27. Plate glass							
28. Burglary and theft .							
29. Steam boiler . . .							
30. Machinery							
31. AUTO PROPERTY DAMAGE . .							
32. Auto collision. . . .							
33. PROPERTY DAMAGE AND COLLISION OTHER THAN AUTO .							
34. (a)................							
35. TOTALS . . .							

†By gross premiums is meant the aggregate of all the premiums written in the policies or renewals in force. Are they so returned in this statement? Answer:..................

(a) Enter line of business.

*State here basis of computation used in each case..................................

STATE OF...}
COUNTY OF...} ss:

...., President,......................................., Secretary, and.......................................‡Treasurer

of the..., being duly sworn, each for himself deposes and says that they are the above-described officers of the said company, and that on the thirty-first day of December last, all of the above-described assets were the absolute property of the said company, free and clear from any liens or claims thereon, except as above stated, and that the foregoing statements, with the schedules and explanations therein contained, annexed or referred to, are a full and correct exhibit of all the assets, liabilities, income and disbursements and of the condition and affairs of the said company on the said thirty-first day of December last, and for the year ended on that date, according to the best of their information, knowledge and belief, respectively.

Subscribed and sworn to before me this..................}
day of.................................1941. }

.... President

.... Secretary

.... ‡Treasurer

....

....

NOTE.—United States manager must amend affidavit to show clearly that it covers the statement of the United States branch.

‡Or corresponding person having charge of the accounts and finances of the company.

EXHIBITS AND SCHEDULES

EXHIBIT 2

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE.. Form 3
(*Write or stamp name of Company*)

EXHIBIT OF PREMIUMS WRITTEN AND LOSSES PAID

BUSINESS IN THE STATE OF CONNECTICUT DURING THE YEAR

PREMIUMS WRITTEN

CLASS	GROSS PREMIUMS, INCLUDING POLICY AND MEMBERSHIP FEES, LESS RETURN PREMIUMS AND PREMIUMS ON POLICIES NOT TAKEN						Net Premiums		Dividends Paid or Credited to Policyholders, Less Received On Reinsurance	
	Direct Writings		Reinsurance Assumed		Reinsurance Ceded					
	(1)		(2)		(3)		(4)		(5)	
1. Accident										
2. Health										
3. Non-cancellable accident and health										
4. Auto liability . . .										
5. Liability other than auto.										
6. Workmen's compensation.										
7. Fidelity										
8. Surety										
9. Plate glass										
10. Burglary and theft . .										
11. Steam boiler . . .										
12. Machinery										
13. Auto property damage .										
14. Auto coliision . . .										
15. Property damage and collision other than auto										
16. (*a*)................................										
17. TOTALS* . . .										

*To agree with Schedule T.

LOSSES PAID

CLASS	Gross losses paid (deducting salvage)		Deduct losses on risks reinsured		Net losses paid column 1, minus column 2	
	(1)		(2)		(3)	
18. Accident						
19. Health						
20. Non-cancellable accident and health						
21. Auto liability . . .						
22. Liability other than auto.						
23. Workmen's compensation.						
24. Fidelity						
25. Surety						
26. Plate glass						
27. Burglary and theft . .						
28. Steam boiler . . .						
29. Machinery						
30. Auto property damage .						
31. Auto collision . . .						
32. Property damage and collision other than auto						
33. (*a*)................................						
34. TOTALS . . .						

(*a*) Enter line of business.

EXHIBIT 3

Form 3

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE ....
(Write or stamp name of Company)

SCHEDULE A—Part 1

Showing All Real Estate **OWNED** *December 31 of Current Year, the Cost, Book and Market Value thereof, the Nature and Amount of all Liens and Incumbrances thereon, including Interest Due and Accrued, etc.*

No.	(1) QUANTITY, DIMENSIONS AND LOCATION OF LANDS; SIZE AND DESCRIPTION OF BUILDINGS (Nature of incumbrances, if any, including interest due and accrued)	(2) Date Acquired	(3) NAME OF VENDOR	(4) Amount of Incumbrances $	(5) *Actual Cost $	(6) Book Value, Less Incumbrances $	(7) †Market Value, Less Incumbrances $	(8) Increase, by Adjustment, in Book Value During Year $	(9) Decrease, by Adjustment, in Book Value During Year $	GROSS AND NET INCOME, TAXES, REPAIRS AND EXPENSES FOR EACH OF LAST THREE YEARS							(17) Rental Value of Space Occupied by Company $	(18) Superintendent of Insurance's Certificates of Extension	
										1938		1939		1940					
										(10) Gross Income, Less Interest on Incumbrances $	(11) Net Income $	(12) Gross Income, Less Interest on Incumbrances $	(13) Net Income $	(14) Gross Income, Less Interest on Incumbrances $	(15) Expended for Taxes, Repairs and Expenses $	(16) Net Income $		Date of Issue	Extended To
			Totals																

*Including cost of acquiring title, and, if the property was acquired by foreclosure, such costs shall include the amounts expended for taxes, repairs and improvements prior to the date on which the company acquired title.

†State basis on which market value was determined..

CLASSIFICATION

Showing the total amount of Real Estate owned in each State and Foreign Country

State	Market Value	State	Market Value	State	Market Value	State	Market Value	Foreign Country	Market Value
	$		$		$		$		$
Totals,	$		$		$		$		$

Form 3

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE ....
(Write or stamp name of Company)

SCHEDULE A—Part 2

Showing All Real Estate **ACQUIRED** *During the Year and Showing also Amounts Expended for Additions and Permanent Improvements Made During said Year to* **ALL** *Real Estate*

No.	(1) QUANTITY, DIMENSIONS AND LOCATION OF LANDS SIZE AND DESCRIPTION OF BUILDINGS (OR) NATURE OF ADDITIONS AND PERMANENT IMPROVEMENTS MADE DURING THE YEAR (Nature of incumbrances if any)	(2) DATE ACQUIRED	(3) HOW ACQUIRED	(4) NAME OF VENDOR	(5) Cost to Company During the Year $	(6) Amount Expended for Additions and Permanent Improvements During the Year $	(7) Book Value December 31 of Current Year Less Incumbrances $
				Totals			

SCHEDULE A—Part 3

Showing All Real Estate **SOLD** *or Otherwise Disposed of During the Year Including Payments During the Year on "Sales under Contract"*

No.	(1) QUANTITY, DIMENSIONS AND LOCATION OF LANDS: SIZE AND DESCRIPTION OF BUILDINGS (Nature of incumbrances, if any)	(2) DATE SOLD	(3) NAME OF PURCHASER	(4) †Cost to Company $	(5) Increase, by Adjustment, in Book Value During the Year $	(6) Decrease, by Adjustment, in Book Value During the Year $	(7) Book Value at Date of Sale Less Incumbrances $	(8) ‡Amount Received Including Payments on Sales Under Contract $	(9) Profit on Sale $	(10) Loss on Sale $	(11) Gross Income During Year Less Interest on Incumbrances $	(12) Expended for Taxes, Repairs and Expenses During Year $
			Totals									

†Including cost of acquiring title, and, if the property was acquired by foreclosure, such costs shall include the amounts expended for taxes, repairs, and improvements prior to the date on which the company acquired title.

‡Indicate payments on "Sales under Contracts" in Part 3 by inserting the letter "P" after the number of the parcel.

SCHEDULE A—Verification Between Years

Book Value, December 31, Previous Year (Item 1, Page 4, Annual Statement) . . . . ________

Current Year:—

Increase by Adjustment: Totals, Part 1, Col. (8) . . . . ________

Totals, Part 3, Col. (5) . . . . ________

Cost of Acquired, Part 2, Col. (5) . . . . ________

Cost of Additions and Permanent Improvements, Part 2, Col (6) . . . . ________

Profit on Sales, Part 3, Col. (9) . . . . ________

Total . . . . ________

Less:—

Decrease by Adjustment: Totals, Part 1, Col. (9) . . . . ________

Totals, Part 3, Col. (6) . . . . ________

Received on Sales, Part 3, Col. (8) . . . . ________

Loss on Sales, Part 3, Col. (10) . . . . ________ ________

Book Value, December 31, Current Year (Item 1, Page 4) . . . . ________

EXHIBIT 4

Form 3

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE ....
(Write or stamp name of Company)

SCHEDULE B

Showing all MORTGAGES OWNED December 31 of Current Year, and all Mortgage Loans Made, Increased, Discharged, Reduced or Disposed of During the Year

NUMBER	DATE		RECORD OF MORTGAGE				PRINCIPAL								INTEREST										VALUE OF LANDS MORTGAGED	VALUE OF BUILDINGS	AMOUNT OF FIRE INSURANCE HELD BY COMPANY ON THE BUILDINGS	LOCATION AND DESCRIPTION (State if this mortgage is being foreclosed, or if there are any prior liens)
	Year Given	Year Due	State	County	Book	Page	AMOUNT UNPAID DEC. 31 OF PREVIOUS YEAR		AMOUNT LOANED DURING YEAR (A)		AMOUNT PAID ON ACCOUNT OR IN FULL DURING YEAR (B)		AMOUNT UNPAID DEC. 31 OF CURRENT YEAR		DATE DUE	RATE %	AMOUNT PAST DUE DEC. 31 OF CURRENT YEAR		AM'T ACCRUED DEC. 31 OF CURRENT YEAR		GROSS AM'T REC'D DURING YEAR		Paid for Accrued Interest on Mortgages Acquired During Year					
							Dollars	Cts.	Dollars	Cts.	Dollars	Cts.	Dollars	Cts.			Dollars	Cts.	Dollars	Cts.	Dollars	Cts.	Dollars	Cts.	Dollars	Dollars	Dollars	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(9)		(10)		(11)		(12)	(13)	(14)		(15)		(16)		(17)		(18)	(19)	(20)	(21)
				Totals																								

(A) Including all mortgages "purchased" or otherwise acquired during the year and all increases during the year on loans outstanding December 31 of previous year.
(B) Including mortgages under which Company has secured title and possession by foreclosure.

CLASSIFICATION

Showing the Total Amount of Mortgage Loans on Real Estate in Each State and Foreign Country

STATE	AMOUNT		STATE	AMOUNT		STATE	AMOUNT		STATE	AMOUNT		FOREIGN COUNTRY	AMOUNT	
	$			$			$			$			$	
Totals	$			$			$			$			$	

EXHIBIT 5

Form 3

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE ....
(Write or stamp name of Company)

SCHEDULE C—Part 1

Showing all Collateral Loans **IN FORCE** *December 31 of Current Year, and all Substitutions of Collateral Thereon During said Year*

No.	Description of Securities Held as Collateral December 31 of Current Year (Give in this column the number of shares or each block of stock and rate of interest and year of maturity of each bond held as collateral)	Par Value	Rate Used to Obtain Market Value	Market Value Dec. 31 of Current Year	Amount Loaned Thereon	Date of Loan	Maturity of Loan	Interest				Substitutions of Collateral, Viz:								Name of Actual Borrower
								Rate on Loan	Am't Past Due Dec. 31 of Current Year	Am't Accrued Dec. 31 of Current Year	Am't Received During Year	Collateral Substituted				Collateral Released				
												Description	Date	Par Value	Market Value	Description	Date	Par Value	Market Value	
		$		$	$				$	$	$			$	$			$	$	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Totals	$	......	$	$	......	......	......	$	$	$	......	......	$	$	......	......	$	$	

Form 3

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE ....
(Write or stamp name of Company)

SCHEDULE C—Part 2

Showing all Collateral Loans **MADE** *During the Year, and All Substitutions of Collateral Thereon During Said Year*

No.	Description of Security Accepted as Collateral When Loan was Made	Par Value	Rate Used to Obtain Market Value	Market Value at Date of Loan	Amount Loaned Thereon	Date of Loan	Maturity of Loan	Rate of Interest on Loan	Substitutions of Collateral, Viz:								Name of Actual Borrower
									Collateral Substituted				Collateral Released				
									Description	Date	Par Value	Market Value	Description	Date	Par Value	Market Value	
		$		$	$						$	$			$	$	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Totals	$	......	$	$	......	......	......	......	......	$	$	......	......	$	$	

NOTE—Substitutions of collateral need be shown in detail in only one exhibit. Refer in each of the other exhibits to the number of the loan in the exhibit in which the substitution is shown and show the substitutions in Part 1 when possible.

SCHEDULE C—Part 3

Showing all Collateral Loans **DISCHARGED** *in Whole or in Part During the Year, and All Substitutions of Collateral Thereon During Said Year*

No.	Description of Collateral Released When Loan Was Discharged. (In case of partial payments enter collateral released only)	Par Value	Rate Used to Obtain Market Value	Market Value at Date of Discharge	Amount of Loan Repaid	Date of Loan	Date of Repayment	Interest		Substitutions of Collateral, Viz:								Name of Actual Borrower
								Rate on Loan	Amount Received During Year	Collateral Substituted				Collateral Released				
										Description	Date	Par Value	Market Value	Description	Date	Par Value	Market Value	
		$		$	$				$			$	$			$	$	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	Totals	$	......	$	$	......	......	......	$	......	......	$	$	......	......	$	$	

NOTE—Indicate partial payments in Part 3 by the letter "P" in number column.

EXHIBIT 6

Form 3

Bonds to be grouped in following manner and each group arranged alphabetically:

Government
States, Territories and Possessions
Political Subdivisions of States, Territories and Possessions
Railroad
Public Utilities
Industrial and Miscellaneous — Show sub-totals for each group.

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE..
(Write or stamp name of Company)

SCHEDULE D—Part 1

Showing all BONDS *Owned December 31 of Current Year*

Supplemental columns for data concerning Amortization. *See Note*

(1) DESCRIPTION Give complete and accurate description of all bonds owned, including the location of all street railway and miscellaneous companies. If bonds are "serial" issues give amount maturing each year.	(2) INTEREST		(3) DATE OF			(4) Book Value	(5) Par Value	(6) Rate Used to Obtain Market Value	(7) Market Value (excluding accrued interest)	(8) Actual Cost (excluding accrued interest)	(9) INTEREST		(10) Increase, by Adjustment, in Book Value During Year	(11) Decrease, by Adjustment, in Book Value During Year	(12) Amount of Interest due and accrued Dec. 31, current year, on bonds in default as to principal or interest	(13) Are These Bonds Amply Secured?	(14) Year Acquired	(15) Effective Rate of Interest at Which Purchase Was Made	(16) †Amortized or Investment Value Dec. 31 of Current Year	(17) ‡Increase in Amortized Value During Year	(18) ‡Decrease in Amortized Value During Year
	Rate of	*How Paid	Maturity		Option						Amount Due and Accrued Dec. 31 of Current Year on bonds not in default	Gross Am't Received During Year									
			Year	Month																	
						$	$		$	$	$	$	$	$	$				$	$	$
Totals	......	......	......	......	......	$	$	......	$	$	$	$	$	$	$	......	....	......	$	$	$

*Insert initial letters of months in which interest is payable.

†Perpetual bonds, bonds in default as to principal or interest, and bonds not amply secured, are to be enterrd in this column at market value.

‡Companies which use "Amortised Values" as "Book Values" may omit entering figures in these columns, and provide the following footnote: "The increases and decreases in amortized values are the same as those shown in columns for 'Increase and Decrease by Adjustment in Book Value,' excepting as otherwise indicated."

NOTE—This supplemental information, required of all Companies which amortize their bonds, is not to be used as a substitute for the information required in the preceding columns but in addition thereto.

Form 3

Stocks to be grouped in the following order and each group arranged alphabetically:

Railroad
Public Utilities
Banks Trust and Insurance Companies
Industrial and Miscellaneous — Show sub-totals for each group

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE ....
(Write or stamp name of Company)

SCHEDULE D—Part 2

Showing All STOCKS *Owned December 31 of Current Year*

(1) DESCRIPTION Give complete and accurate description of all stocks owned, including redeemable options, if any, and location of all street railway, bank, trust and miscellaneous companies	(2) No. of Shares	(3) Par Value Per Share	(4) Book Value	(5) Rate Per Share Used to Obtain Market Value	(6) Market Value	(7) Actual Cost	(8) DIVIDENDS				(9) Increase, by Adjustment, in Book Value During Year	(10) Decrease, by Adjustment, in Book Value During Year	(11) Year Acquired
							Rate of or in Each of Last Three Years			Amount Received During Year			
							1938	1939	1940				
		$	$		$	$				$	$	$	
Totals,	......	......	$	......	$	$	......	......	......	$	$	$	......

Form 3

Stocks and bonds to be grouped separately showing sub-totals for each group.

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE..
(Write or stamp name of Company)

SCHEDULE D—Part 3

Showing All Bonds and Stocks ACQUIRED *During Year*

(1) DESCRIPTION Give complete and accurate description of each bond and stock, including location of all street railway, bank, trust and miscellaneous companies. If bonds are serial issues give amounts maturing each year. Give full information as to redeemable options, if any, for each bond and stock	(2) Date Acquired	(3) NAME OF VENDOR	(4) No. of Shares of Stock	(5) Actual Cost (excluding accrued interest on bonds)	(6) Par Value of Bonds	(7) Paid for Accrued Interest on Bonds Acquired During Year
				$	$	$
	......	*Totals*	......	$	$	$

Stocks and bonds to be grouped separately showing sub-totals for each group.

SCHEDULE D—Part 4

Showing All Bonds and Stocks SOLD, REDEEMED *or Otherwise* DISPOSED OF *During Year*

(1) DESCRIPTION Give complete and accurate description of each bond and stock, including location of all street railway, bank, trust and miscellaneous companies. If bonds are serial issues give amounts maturing each year. Give full information as to redeemable options, if any, for each bond and stock	(2) Date Sold	(3) NAME OF PURCHASER	(4) No. of Shares of Stock	(5) Consideration (excluding accrued interest on bonds)	(6) Par Value of Bonds	(7) Actual Cost (excluding accrued interest on bonds)	(8) Book Value at Date of Sale	(9) Increase, by Adjustment, in Book Value During Year	(10) Decrease, by Adjustment, in Book Value During Year	(11) Profit on Sale	(12) Loss on Sale	(13) Interest on Bonds Received During Year (including accrued interest on bonds sold)	(14) Dividends on Stock Received During Year
				$	$	$	$	$	$	$	$	$	$
		Totals	......	$	$	$	$	$	$	$	$	$	$

EXHIBITS AND SCHEDULES

EXHIBIT 7

Form 3 ANNUAL STATEMENT FOR THE YEAR 1940 OF THE ....
(Write or stamp name of Company)

SCHEDULE E

Showing Names and Locations of Companies and Amounts Recoverable for all Reinsurance on Paid and Unpaid Losses

NAMES OF COMPANIES	LOCATIONS	(1) (A) PAID LOSSES		(2) UNPAID LOSSES	
		Dollars	Cts.	Dollars	Cts.
	Totals				

(A) Carry as ledger asset or non-ledger asset.

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE .... Form 3
(Write or stamp name of Company)

SCHEDULE G

Showing Net Losses Paid on Fidelity and Surety claims that were undisposed of December 31st of the following years, as compared with Estimated Liability per Annual Statement of the respective years and at end of Current Year

(1)		(2)		(3)		(4)		(5)		(6)	
NET LOSSES AND CLAIMS UNPAID DECEMBER 31ST PER ANNUAL STATEMENT FOR EACH OF THE FOLLOWING YEARS (EXCLUDE RESERVES FOR CLAIMS INCURRED BUT NOT REPORTED) VIZ:				TOTAL AMOUNT PAID TO DATE		ESTIMATED LIABILITY DECEMBER 31ST CURRENT YEAR		TOTAL (COL. 3 + COL. 4)		INCREASE OR (—) DECREASE ESTIMATED LIABILITY (DIFF. COL. 2 AND 5)	
1933	Fidelity										
	Surety										
1934	Fidelity										
	Surety										
1935	Fidelity										
	Surety										
1936	Fidelity										
	Surety										
1937	Fidelity										
	Surety										
1938	Fidelity										
	Surety										
1939	Fidelity										
	Surety										

SCHEDULE H

Showing all Gross Salvage received during the year (without deducting reinsurance) on account of Losses and Claims paid prior to and including December 31 of Current Year, which is shown in line 17, column 2, page 3, and deducted from the Disbursements in the Annual Statement for the year ended December 31 of Current Year

AMOUNT OF SALVAGE RECEIVED IN CASH, VIZ: ON LOSSES OF THE CURRENT YEAR, $..........................; ON LOSSES OF PREVIOUS YEARS, UNPAID DECEMBER 31 OF PREVIOUS YEAR, $..; ON LOSSES OF PREVIOUS YEARS PAID PRIOR TO DECEMBER 31 OF PREVIOUS YEAR, $..........................; TOTAL, $..........................

EXHIBIT 8

Form 3

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE..
(Write or stamp name of Company)

SCHEDULE P—Part 1

Reserve for Unpaid Liability (including Automobile) Losses December 31 of Current Year

SCHEDULE OF EXPERIENCE

Years in which liability policies were issued	(a) Gross liability premiums on policies written or renewed (1)	Amount of earned liability premiums (See notes b and c) (2)	(d) Liability loss payments (3)	(e) LIABILITY LOSS EXPENSE PAYMENTS					Liability loss and loss expense payments (Col. 3 plus Col. 6) (7)	Percentage of payments to premiums earned (Col. 7 divided by Col. 2) (8)	Liability Suits Pending Dec. 31 of Current Year			Total estimated reserve for liability losses; case-basis (12)	Total liability losses (Sum of Items in Cols. 7 and 12) (13)	Liability loss ratio (Col. 13 divided by Col. 2) % (14)
				Allocated (4)	t Ratio of allocated expense to losses paid (4a)	Unallocated (5)	Ratio of un-a located expense to losses paid (5a)	Total Col. 4 plus Col. 5) (6)			Number of suits (9)	Amount charged for each suit (10)	Total suit liability (Col. 9 times Col. 10) (11)			
First period Prior to 1931	$	$	$	$		$		$	$				$	$	$	
1931												$1,500				
1932												1,000				
1933												1,000				
1934												1,000				
1935												1,000				
1936												1,000				
1937												850				
Total first period												850				
Second period 1938																
1939												750				
1940												750				
Total second period												750				
Grand totals	$	$	$	$		$		$	$			$	$	$	$	

COMPUTATION OF RESERVE FOR UNPAID LIABILITY (INCLUDING AUTOMOBILE) LOSSES

Years in which liability policies were issued	60% of earned premiums stated in Col. 2, second period (15)	Deduct loss payments and expense stated in Col. 7, second period (16)	Remainder (Col. 15 less Col. 10) If negative enter "O." (17)	Estimated Reserve for liability losses; case-basis (Col. 12, second period) (18)	Carry out for each year amount stated in Cols. 17 or 18, whichever is greater (19)	AS COMPUTED BY THE COMPANY			
						Voluntary additional reserves for unpaid liability losses (20)	Total liability loss reserves (Col. 19 plus Col. 20) (21)	Total incurred liability losses (Col. 16 plus Col. 21) (22)	Incurred loss ratio (Col. 22 divided by Col. 2) % (23)
1938	$	$	$	$	$	$	$	$	
1939									
1940									
Totals	$	$	$	$	$	$	$	$	

(24) Reserve for unpaid liability losses, first period (Col. 11, first period, or Col. 12, first period, whichever is greater)	$
(25) Reserve for unpaid liability losses, second period (total of Col. 21)	
(26) Total reserve for unpaid liability losses	$

Distribution of Unallocated Liability (including Automobile) Claim Expenses

For Companies which have been issuing Policies 5 Years or more.

Calendar years in which payments were made	Amount of unallocated liability payments	Prior to 1931	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Prior to 1940	$											
1940								5%	10%	10%	40%	35%
Totals	$											

EXHIBIT 9

Form 3

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE..
(Write or stamp name of Company)

SCHEDULE P—Part 2

Reserve for Unpaid Workmen's Compensation Losses December 31 of Current Year

SCHEDULE OF EXPERIENCE

Years in which compensation policies were issued	(a) Gross compensation premiums on policies written or renewed	Amount of earned compensation premiums (See notes *b* and c)	(d) Compensation loss payments	(e) COMPENSATION LOSS EXPENSE PAYMENTS					Compensation loss and loss expense payments (Col. 3 plus Col. 6)	Percentage of payments to premiums earned (Col. 7 divided by Col. 2)	Unpaid Compensation claims December 31 of current year		Total compensation losses (sum of items in Cols. 7 and 10)	Compensation loss ratio (Col. 11 divided by Col. 2) %
				Allocated	Ratio of allocated expense to losses paid	Unallocated	Ratio of unallocated expense to losses paid	Total			No.	Present value at.......per centum interest of estimated future payments		
	(1)	(2)	(3)	(4)	(4a)	(5)	(5a)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
First period Prior to 1931	$	$	$	$		$		$	$			$	$	
1931														
1932														
1933														
1934														
1935														
1936														
1937														
Total first period														
Second period 1938														
1939														
1940														
Total second period														
Grand totals	$	$	$	$		$		$	$			$	$	

COMPUTATION OF RESERVE FOR UNPAID COMPENSATION LOSSES

Years in which compensation policies were issued	65% of earned premium stated in column 2	Deduct loss payments and expense stated in column 7	Remainder (Col. 13 less Col. 14 If negative enter "O")	Unpaid compensation claims (Col. 10)	Carry out for each year amount stated in Col. 15 or 16, whichever is greater	AS COMPUTED BY THE COMPANY			
						Voluntary additional reserve for unpaid compensation losses	Total compensation loss reserves (Col. 17 plus Col. 18)	Total incurred compensation losses (Col. 14 plus Col. 10)	Incurred loss ratio (Col. 20 divided by Col. 2) %
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1938	$	$	$	$	$	$	$	$	
1939									
1940									
Totals	$	$	$	$	$	$	$	$	
(22) Reserve for unpaid compensation losses first period (Col. 10, total first period)					$				
(23) Reserve for unpaid compensation losses second period (Total of Col. 19)									
(24) Total reserve for unpaid compensation losses					$				

Distribution of Unallocated Compensation Claim Expenses

For Companies which have been issuing Policies 4 Years or more.

Calendar Years in which payments were made	Amount of Unallocated Compensation Payments	Prior to 1931	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Prior to 1940	$											
1940									5%	10%	45%	40%
Totals	$											

NOTES: (a) There should be included in this column the gross premiums on policies written or renewed in each of the respective years plus the additional premiums on said policies, less the return premiums, abatement of premiums and reinsurance. Are they so returned in this schedule? Answer:..............................

(b) Earned premiums must include gross premiums charged on all policies written during said period, including all determined excess and additional premiums, less return premiums, other than premiums returned to policyholders as dividends, and less reinsurance premiums and premiums on policies canceled, and less unearned premiums on policies in force. Such premiums must be credited or charged to calendar years in which policies were written. Are they so returned in this statement? Answer:..............................

(c) Any participating Company which has charged in its premiums a loading solely for dividends shall not be required to include such loading in its earned premiums, provided a statement of the amount of such loading has been filed with and approved by the superintendent of insurance.

(d) There should be included with "Loss payments" all payments for first aid and medical attendance. Are they so returned in this statement? Answer:..............................

(e) There should be included with "Loss expense payments" all payments for legal expenses, including attorney's and witness fees and court costs, salaries and expenses of investigators, adjusters and field men, rents, stationery, telegraph and telephone charges, postage, salaries and expenses of office employees, home office expenses and all other payments under or on account of such injuries, whether the payments are allocated to specific claims or are unallocated. Are they so returned in this statement? Answer:..............................

EXHIBITS AND SCHEDULES

EXHIBIT 10

ANNUAL STATEMENT FOR THE YEAR 1940 OF THE ______________________ Form 3
(Write or stamp name of Company)

SCHEDULE P—Part 5

Development of Incurred Liability Losses

Sum of Columns (3), (4) and (12)—Schedule P—Part 1 [Sum of Columns (3) and (12) only if company does not include reserve for allocated loss expense in Column (12)]

Policy years	Years in which losses were incurred	RESERVE DATE					
		Dec. 31, 1936	Dec. 31, 1936	Dec. 31, 1937	Dec. 31, 1938	Dec. 31, 1939	Dec. 31, 1940
1935	1935						
1935	1936	X X X					
1936	1936	X X X					
1936	1937	X X X	X X X				
1937	1937	X X X	X X X				
1937	1938	X X X	X X X	X X X			
1938	1938	X X X	X X X	X X X			
1938	1939	X X X	X X X	X X X	X X X		
1939	1939	X X X	X X X	X X X	X X X		
1939	1940	X X X	X X X	X X X	X X X	X X X	
1940	1940	X X X	X X X	X X X	X X X	X X X	
*1933	1936	X X X					
*1934	1936	X X X					
*1934	1937	X X X	X X X				
*1935	1937	X X X	X X X				
*1935	1938	X X X	X X X	X X X			
*1936	1938	X X X	X X X	X X X			
*1936	1939	X X X	X X X	X X X	X X X		
*1937	1939	X X X	X X X	X X X	X X X		
*1937	1940	X X X	X X X	X X X	X X X	X X X	
*1938	1940	X X X	X X X	X X X	X X X	X X X	

SCHEDULE P—Part 5A

Development of Incurred Compensation Losses

Sum of Columns (3), (4) and (10)—Schedule P—Part 2 [Sum of Columns (3) and (10) only if company does not include reserve for allocated loss expense in Column (10)]

Policy years	Years in which losses were incurred	RESERVE DATE					
		Dec. 31, 1935	Dec. 31, 1936	Dec. 31, 1937	Dec. 31, 1938	Dec. 31, 1939	Dec. 31, 1940
1935	1935						
1935	1936	X X X					
1936	1936	X X X					
1936	1937	X X X	X X X				
1937	1937	X X X	X X X				
1937	1938	X X X	X X X	X X X			
1938	1938	X X X	X X X	X X X			
1938	1939	X X X	X X X	X X X	X X X		
1939	1939	X X X	X X X	X X X	X X X		
1939	1940	X X X	X X X	X X X	X X X	X X X	
1940	1940	X X X	X X X	X X X	X X X	X X X	
*1933	1936	X X X					
*1934	1936	X X X					
*1934	1937	X X X	X X X				
*1935	1937	X X X	X X X				
*1935	1938	X X X	X X X	X X X			
*1936	1938	X X X	X X X	X X X			
*1936	1939	X X X	X X X	X X X	X X X		
*1937	1939	X X X	X X X	X X X	X X X		
*1937	1940	X X X	X X X	X X X	X X X	X X X	
*1938	1940	X X X	X X X	X X X	X X X	X X X	

*These lines to be filled in only by companies which charge all losses under policies running for a period of more than one year to the original policy year of issue.

EXHIBIT 11

Form 2

ANNUAL STATEMENT FOR THE YEAR 1941 OF THE ....
(Write or stamp name of Company)

SCHEDULE O—Part 1

Losses and Claims Other Than Liability and Workmen's Compensation Claims

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Losses and claims paid during the year less salvage and reinsurance received thereon during the year.		Salvage and reinsurance received in the current year on losses paid prior thereto	Net disbursements for losses and claims paid during the year, per items 1-16, Col. 5, Page 3 (Cols. 2+3—4)	Losses and claims unpaid Dec. 31 of current year, viz.:			Total losses and claims incurred to December 31 of current year on losses and claims incurred in prior years (Columns 2+6)	Estimated liability on unpaid losses and claims Dec. 31 of previous year, per items 2 to 14 inclusive, Column (6) and item 17, page 5 of last annual statement c)	Increase or decrease in such estimated liability (indicate decrease by minus sign) difference between (Col. 9 and 10)
					Estimated liability Dec. 31 of current year					
	**On losses and claims incurred prior to January 1 of current year	On losses and claims incurred during the year			**On losses and claims unpaid Dec. 31 of previous year, less reinsurance thereon	On losses and claims incurred during the year, less reinsurance thereon	Total (Columns 6+7) (b)			
1. Accident										
2. Health										
3. Non-Cancellable Accident and Health										
4. Fidelity						*	*		*	
5. Surety						*	*		*	
6. Glass										
7. Burglary and Theft										
8. Boiler										
9. Machinery										
10. Auto Prop'y Damage										
11. Auto Collision										
12. Property Damage and Collision other than Auto										
13. (a)										
14. Totals						*	*		*	

(a) Enter "Credit {Item 14 / Item 17} page 5," or other lines of business.

(b) Fidelity and Surety reserves obtained from column (4) lines 5 and 6, page 5.

(c) Fidelity and Surety estimated liability obtained from column (4) lines 5 and 6, page 5 of last year's statement.

*Exclude reserves for Fidelity and Surety losses and claims incurred but not reported.

**Including all losses and claims reported in the current year where the loss was incurred prior thereto.

NOTE: Salvage and reinsurance as used in columns 2 and 3 include (1) received in cash, and (2) recoverable (charged during year of statement) if carried as a ledger asset; as used in column 4 include (1) received in cash and not carried as a ledger asset in previous statements, and (2) recoverable (charged during year of statement) if carried as a ledger asset.

SCHEDULE O—Part 2

Development of Incurred Losses
Non-Cancellable Accident and Health Insurance

Sum of net amount paid policyholders for losses and reserve for losses outstanding at end of year

Years in Which Losses Were Incurred	RESERVE DATE				
	Dec. 31, 1941	Dec. 31, 1942	Dec. 31, 1943	Dec. 31, 1944	Dec. 31, 1945
1941				X X X	X X X
1942	X X X				X X X
1943	X X X	X X X			
1944	X X X	X X X	X X X		
1945	X X X	X X X	X X X	X X X	

DISCUSSION OF THE RATEMAKING PROCEDURE IN WORKMEN'S COMPENSATION INSURANCE

A METHOD OF TESTING CLASSIFICATION RELATIVITIES

BY

STEFAN PETERS

A. *Introduction*

If in one of the natural sciences a scientist is to study a complex phenomenon which is determined by many elementary causes he usually approaches his problem in three different ways. He first studies the phenomenon in a purely empirical manner trying to describe his measurements by means of a mathematical formula or graph. He then tries to develop a theory regarding the action of the many small causes which in the aggregate produce the phenomenon under investigation, and finally he tests independently his hypothesis regarding the elementary causes. Thus, in thermodynamics the specific heats of gases, as determined by experiments, are first described as a function of the molecular composition of these gases, then a hypothesis is developed relative to the action of the individual molecules (e.g. the kinetic theory of gases) and finally the assumptions regarding the behavior of the individual molecules are tested by the physicist through independent experiments.

The problems facing the research worker in natural sciences are not essentially different from those facing the actuary in casualty insurance when concerned with the task of making rates for a great number of different classifications. The method followed by the actuary, however, is not so complete as that followed by, say, the physicist. He describes the composite phenomenon, for instance, he determines the required rate level from experience; he develops a theory as to the individual causes producing the general phenomenon, that is, he estimates classification relativities, credibilities and law amendment factors on the basis of certain statistical assumptions; but he usually fails to test his hypothesis independently as does the physicist. This paper is intended to complete the actuarial method by testing the various assumptions made in the computation of rates. The subject is restricted to the ratemaking procedure in workmen's compensation insurance, but it is believed that some of the methods proposed will be applicable —with due changes—to other casualty lines.

The present part of the paper, in particular, is concerned with a method of testing classification relativities. No attempt has been made to draw definite conclusions as to the accuracy and usefulness of the present procedure of selecting pure premiums. This may perhaps be done in a later part of this paper to be published in the future. The main purpose of this part of the paper is to develop a *method* of testing a given set of selected pure premiums as to its accuracy, or better, of comparing two different sets of selected pure premiums as to their relative accuracy. Since the approach to this problem is new, and this study, therefore, cannot benefit from past experience, the method proposed will doubtlessly contain many faults and be subject to improvement, suggestions for which, the author hopes, will be forthcoming in the discussion of this paper.

B. *The Present Method of Determining Classification Relativities*

Under the present ratemaking program, classification relativities are determined by the computation, for each state, of a set of selected pure premiums at the time of a proposed rate revision. For classifications with a large volume of exposure these pure premiums are simply equal to the indicated pure premiums obtained from the actual state experience incurred under these classifications during the last five policy years after the losses for different policy years have been brought to a common level. These pure premiums are determined separately for serious, nonserious and medical losses. For classifications with a small volume of exposure for which the limited volume of experience does not permit reliance entirely upon the indications of the actual experience for a five year period, these indicated premiums are weighted against national pure premiums. Thus a set of formula pure premiums is obtained which generally is selected as the final pure premium for the classification. Occasionally, however, the formula pure premium is modified either by judgment or according to certain rules which it is not necessary to mention here. The weight accorded to the state indications of the classifications increases with increasing size of expected losses. 100% credibility is assigned to the state indications for serious pure premiums where the expected losses are equal to or larger than 25 times the average death and permanent total indemnity loss; for non-serious pure premiums the criterion for 100% credibility is expected losses of at least 300 times the average cost of a non-serious case; and for medical pure premiums the criterion for 100% credibility is expected losses of at least 80% of the non-serious criterion for 100% credibility. Between 100% and 0% the credibility is considered a linear function of the expected losses but only credibility values of 100%, 75%, 50%, 25%, 15%, 10% and 0% are used.

The national pure premiums forming a part of the selected pure premiums for classifications with small exposure are derived from national pure premiums on a basic level. These are computed from countrywide experience for five policy years, brought to the common basic level by application of conversion factors which are determined separately for serious, non-serious and medical losses and for each policy year. In ratemaking, the national pure premiums on the basic level are brought back to the experience level of the state for which they are to be used by means of reversion factors which are calculated separately for serious, non-serious and medical pure premiums and for each industry group. These reversion factors are determined in such a way that, separately by industry group and by parts, the aggregate expected losses derived from national pure premiums total to the same amount as that portion of the expected losses derived from indicated state pure premiums which they replace in the formula expected losses.

The author does not intend to give a detailed critical analysis of the theory underlying this method of computing selected pure premiums. Some of the more important objections which have been raised against the method will briefly be mentioned. In many instances it is doubtful whether the experience incurred under the same classification in different states can properly be combined since the nature of the operations covered under the same classification frequently differs to a substantial degree. Another objection is caused by the difference in the nature of the conversion factors used in assembling the experience required for the computation of national pure premiums on the basic level and of the reversion factors used in reverting the national pure premiums to any particular state level. This has the effect of distorting the pure premium for those classifications, the bulk of whose experience comes from one state only, if the industry group rate level differs substantially from the rate level for all industry groups combined. Another point raised is that the reversion factor from the national to state level depends to a much higher degree on the experience of classifications with a small volume of exposure than on that of classifications with a large volume of exposure, as can be seen from the detailed formulas, and thus has been based on a relatively small loss volume which also is subject to large casual fluctuation.

These and several other reasons make it appear probable that the present ratemaking procedure can be substantially improved and it is the purpose of this paper to furnish the tools which enable the actuary to decide whether any given set of pure premiums is better (or worse) than the set of selected pure premiums determined by the present ratemaking procedure.

C. *Theory of the Proposed Method of Analysis*

If a set of pure premiums is to be tested for its accuracy, the obvious approach is to compare the expected losses produced by these pure premiums with the actual losses for a sufficiently long period of time so that one may expect the actual losses to be only slightly influenced by chance fluctuations and to present a close estimate of the "true" expected losses. This course, unfortunately, is difficult to follow in testing the pure premiums for workmen's compensation insurance, firstly, because the experience required for the classifications with small exposure would have to extend over a very long period of time and may even not be available, and secondly, because the combination of the experience for widely separated policy years presents peculiar difficulties due to changes in the benefit level and in the scope of classifications which would make it necessary to use certain assumptions in order to be able to combine the experience incurred in different periods.

The large number of classifications, however, permits another approach to the problem. If we use only the experience of one policy year, but look at the errors due to the method of selecting pure premiums as fortuitous events which are independent for different classifications, we can consider some appropriate quantities which measure these errors as the elements of frequency distributions and base our test on the analysis of these frequency distributions. Details of the manner in which this is accomplished are given later. Since the "true" pure premiums for serious, non-serious and medical losses of the various classifications are not known, we cannot actually measure the error due to the method of selecting a given pure premium, but we can only measure the deviation of the expected losses based on the selected pure premiums from the actual losses incurred during the policy year under consideration. Our frequency distribution of these deviations will, therefore, measure the composite effect of (1) the deviation of the expected losses based on the selected pure premiums from the "true" expected losses which is due to the method of selecting pure premiums and of (2) the deviation of the actual losses from the "true" expected losses which is entirely due to chance.

The quantity which presents itself to mind at first consideration as the most convenient measure of the deviation of actual from expected losses is the ratio of actual to expected losses. This ratio is evidently a positive number which varies from zero to very large amounts and the frequency distribution of this ratio, whose mean must be in the neighborhood of unity, would, therefore, necessarily be skewed. In order to obtain a symmetrical frequency distribution which would be easier to work with, the logarithm (with a base 10) of this ratio has been chosen as a measure of the deviation of actual from expected losses and the frequency distributions thus obtained are actually symmetrical for all practical purposes.

The measure of the deviation of actual from expected losses which will be used in this study, is therefore

$$(1) \qquad x = \log_{10} \frac{\text{actual losses}}{\text{expected losses}}$$

This can also be written

$$(2) \qquad x = x_a + x_n$$

where

$$(3) \qquad x_a = \log_{10} \frac{\text{actual losses}}{\text{“true” expected losses}}$$

$$(4) \qquad x_n = -\log_{10} \frac{\text{expected losses based on selected p.p.'s}}{\text{“true” expected losses}}$$

As the "true" expected losses are not known, the resolution of x into its component parts x_a and x_n is only theoretical and cannot actually be achieved. Although our interest is concentrated exclusively on x_n, we can only study the distribution of $x = x_a + x_n$.

The unknown distributions of x_a and x_n are evidently independent of each other since the one depends on the chance fluctuations of actual losses and the other on the method of selecting pure premiums. The variance σ^2 of the quantity $x = x_a + x_n$ will therefore be equal to the sum of the variance σ_a^2 of x_a and the variance σ_n^2 of x_n.

$$(5) \qquad \sigma^2 = \sigma_a^2 + \sigma_n^2$$

The better the selected pure premiums fit the "true" pure preiums the smaller the variance σ_n^2 will be. The variance σ_a^2 of x_a, however, does not depend on the method of selection of pure premiums. If we, therefore, compare the distributions of x_1 and x_2 for two different sets of selected pure premiums, the variances σ_1^2 and σ_2^2 of x_1 and x_2 will be composed of one common item σ_a^2 corresponding to x_a and an additional item $\sigma_{n,1}^2$ or $\sigma_{n,2}^2$ respectively corresponding to $x_{n,1}$ and $x_{n,2}$:

$$(6) \qquad \sigma_1^2 = \sigma_a^2 + \sigma_{n,1}^2 \qquad\qquad \sigma_2^2 = \sigma_a^2 + \sigma_{n,2}^2$$

Since that variance $\sigma_{n,i}^2$ which corresponds to the pure premiums with the better fit will be smaller than the other, the same will be true for the corresponding σ_i^2. It is on this principle that our method of testing two sets of selected pure premiums against each other is based. The set producing the smaller variance will—if the reduction in the variance is large enough not to be attributable to chance—be the set which comes nearest to the ideal, yet not determinable, "true" pure premiums.

It is possible for one or both of the sets of selected pure premiums to contain a systematic bias. This would show up in the mean of the frequency distribution of x, however, and an analysis of the means will, therefore, be made preceding the analysis of the variances.

As the aim of this study is to test the accuracy of the selection of pure premiums for all classifications, irrespective of whether the effect of any deviation of the selected from the "true" pure premiums relative to the total premium volume is large or small, the indications for classifications with a large volume of exposure were not assigned greater weight than those for classifications with a small volume of exposure. Since, however, that part of the deviation of actual losses from expected losses which is caused by the chance fluctuation of actual losses will obviously be distributed with larger dispersion for classifications with small exposure than for classifications with a larger exposure, the frequency distributions of x have been determined separately for classifications whose state credibility under the present ratemaking procedure is 50% or over and for classifications whose state credibility is less than 50%.

D. *The Computation of the Logarithmic Deviations*

The test method outlined above has been applied to the selected pure premiums for the July 1, 1938 rate revision in New York through the use of the expected losses obtained by extending policy year 1938 statutory medical coverage payrolls at selected medical pure premiums and policy year 1938 total payrolls at selected serious indemnity and non-serious indemnity pure premiums. These expected losses were compared with the actual losses incurred during policy year 1938 in New York, as shown in the exhibits of classification experience which were prepared for the July 1, 1941 rate revision.* Vessel classifications, special New York classifications, "*a*" rated classifications which are rated according to the nature of the operations and chemical classifications were excluded from the material used since they are subject to a special ratemaking procedure.

The policy year 1938 actual losses were chosen for a comparison with the expected losses derived from the selected pure premiums for the July 1, 1938 rate revision because it was believed

* The actual losses were not taken from Schedule Z for 1938 but rather from these exhibits because in the latter losses are conveniently grouped by Serious, Non-Serious and Medical. For classifications involving ex-medical coverage, the medical losses shown in the classification experience exhibits are increased to a statutory medical coverage basis, however. In order to eliminate the effect of this extrapolation, actual medical losses modified by the factors applied in preparing the classification experience were substituted for the medical losses shown in these exhibits.

that the experience incurred during this period should be expected to accord best with the theoretical experience assumed in selecting these pure premiums. It may, however, be better for the sensitiveness of our test method to compare expected losses with the actual losses of a period comprising two or three policy years, because for a longer period the dispersion of the frequency distribution of x_a will be smaller and, hence, σ_a^2 will be reduced whereas x_n and σ_n^2 will not be affected. The portion x_n of $x = x_a + x_n$ in which we are primarily interested will therefore have greater relative weight and this will enhance the sensitiveness of our tests. In this study only one policy year of actual experience was used because otherwise only the selected pure premiums for a less recent rate revision could have been tested, and also because of the prohibitive volume of the calculations required which is too great to be handled by a single person.

Since only classification relativities are the subject of the present study all law amendment factors, projections factors and rate level change factors were eliminated by multiplying actual losses by adjustment factors which were determined separately for each industry group and each partial pure premium and designed to produce the same aggregate amount of actual and expected losses. These factors were obtained by adding serious, non-serious and medical expected and unadjusted actual losses separately for each industry group and dividing each total of expected losses by the corresponding total of actual losses. A rough check of these adjustment factors was made in the following manner: The actual policy year 1938 losses have been used to determine the level of the selected pure premiums used in the July 1, 1941 rate revision in New York. The rate level change factor which translates July 1, 1938 rates to the level of the July 1, 1941 selected pure premiums is known and so are the factors which translate the July 1, 1938 selected pure premiums to the July 1, 1938 rate level. For this reason theoretical factors could be computed which translate July 1, 1938 selected pure premiums by industry group to policy year 1938 actual losses and these factors agreed reasonably closely with the factors obtained in the manner mentioned before. Throughout this study, the premiums for Federal classifications were split up into two independent parts, one reflecting New York coverage and the other reflecting coverage under the

United States Longshoremen's and Harbor Workers' Act, and separate adjustment factors were computed for both coverages.

The quantity

$$(1') \qquad x = \log_{10}\left[\frac{\text{actual losses}}{\text{expected losses}} \cdot \text{adjustment factor}\right]$$

was finally adopted as the measure of the deviation of actual from expected losses and was computed to two decimal places, separately for each partial pure premium and each classification. The information thus obtained was recorded on punch cards showing (1) the classification code, (2) the industry group code, (3) the absolute amount of x, (4) a code for the sign of x, (5) a code for the state credibility of the pure premium, and (6) a code showing whether x referred to serious, non-serious or medical pure premiums.

Originally, it had been intended to combine the quantities x for serious, non-serious and medical pure premiums, but a test showed that there exists a strong correlation between the deviations for medical pure premiums and those for either serious or non-serious indemnity pure premiums of the same classification. This result is not surprising, since an abnormally low incidence of accidents involving serious (or non-serious) indemnity losses for any classification will have the corollary effect of reducing the medical losses caused by such accidents and, consequently, of depressing the total amount of medical losses. The basic assumption that every x constituted an independent fortuitous event would, hence, have been incorrect if the deviations for medical pure premiums had been combined with those for indemnity pure premiums. It was therefore decided to examine serious, non-serious and medical pure premiums separately.

Another difficulty arises in connection with the deviations produced by serious indemnity pure premiums. Since, so far as New York is concerned, a serious indemnity loss cannot be small but runs into a considerable amount of money, the ratio of actual to expected serious losses for those classifications which have a very low expected frequency of serious losses, will not be distributed continuously, but rather be either zero or a substantial positive quantity. In these cases, therefore, it is not quite accurate to assume that x has a continuous frequency distribution. A difficulty of a more mathematical nature is due to the fact that actual serious, non-serious or medical losses incurred under certain classifications during 1938 were zero and consequently the logarithm of the ratio of these losses to expected losses was $-\infty$. Means or a standard deviation of frequency distributions including non-vanishing frequencies at the point $x = -\infty$ cannot be computed. For many purposes, however, the values $x = -\infty$ can reasonably be excluded. Thus, in particular, where needed in this study, means and variances were computed from the distribution of those values of x which were not equal to $-\infty$.

It may be of interest, although not strictly connected with the subject of this paper, to mention a device by which the burdensome numerical calculations involved in the computation of variances for numerous different values of x have been simplified with the help of Hollerith tabulating machines of the kind that are generally used by insurance carriers. This is explained in the Appendix of this paper.†

E. *Discussion of the Frequency Distributions of the Deviations of Serious, Non-Serious and Medical Actual Losses from the Corresponding Expected Losses*

On charts I, II and III the frequency distributions of the variate x are shown in intervals of .05, for serious, non-serious and medical pure premiums, separately for pure premiums with state credibilities of 50% and over (broken lines) and for pure premiums with state credibilities under 50% (solid lines). The rectangles shown on the left represent the area which is due to the occurrence of a certain number of values of $x = -\infty$. The dotted line represents a normal distribution fitted to the curve for pure premiums with state credibilities of 50% or over, after the values of $x = -\infty$ have been excluded.

The numerical characteristics of the frequency distribution shown in the three charts are exhibited in the following table. This table is discussed under point (e) below.

† The author acknowledges gratefully the great help he has received from Mr. Daniel Kalish of the Compensation Insurance Rating Board who assisted him by preparing the punch cards and the numerous tabulations required by this study.

TABLE A

Analysis of Charts I, II and III

Distribution	Total No. of Values Used	Distribution of x Excluding Values $x = -\infty$						
		Number of Values Exclusive of Values $x = -\infty$	Mean $\bar{x}$	Standard Deviation σ	Standard Deviation of Mean $(5) \div \sqrt{(3)}$	$\frac{\bar{x}}{(6)}$	Probability of Mean in Excess of $\pm(4)$	Deviation of Mean from Zero Significant
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Chart I—Serious Pure Premiums								
(a) P.P.'s with Credibilities 50% & Over	139	133	−.02579	.24435	.02119	−1.217	.22	no
(b) P.P.'s with Credibilities Under 50%	441	215	+.13074	.39738	.02710	+4.824	<.01	yes
(c) Normal Distribution	133	133	.00000	.24435	—	—	—	—
Chart II—Non-Serious Pure Premiums								
(a) P.P.'s with Credibilities 50% & Over	284	284	−.02972	.20451	.01214	−2.448	.02	yes
(b) P.P.'s with Credibilities Under 50%	295	270	−.09367	.41030	.02497	−3.751	<.01	yes
(c) Normal Distribution	284	284	.00000	.20451	—	—	—	—
Chart III—Medical Pure Premiums								
(a) P.P.'s with Credibilities 50% & Over	298	298	−.01302	.13770	.00798	−1.632	.10	no
(b) P.P.'s with Credibilities Under 50%	282	271	−.05469	.27950	.01698	−3.221	<.01	yes
(c) Normal Distribution	298	298	.00000	.13770	—	—	—	—

As said before, no definite conclusions can be drawn with regard to the accuracy of the present method of selecting pure premiums from an analysis of the information contained in charts I, II and III alone. The following general conclusions can, however, be drawn from such an analysis:

(a) After exclusion of the values $x = -\infty$ which constitute an important item only for serious losses and which occur much more frequently among pure premiums with low credibilities, the curves are fairly symmetrical. This means that a positive deviation in the amount of, say, c is about equally likely as a negative deviation in the amount of $-c$. Since the variate represents the logarithm of the ratio of actual to expected losses this additive symmetry of x corresponds to a multiplicative symmetry of the ratio of actual to expected losses. In other words, it is about equally likely that actual losses will amount to, say, 125% of expected losses as that actual losses will amount to $\frac{1}{125\%} = 80\%$ of actual losses.

This circumstance is somewhat at variance with the general practice in casualty insurance of using arithmetic (weighted or unweighted) averages.

(b) It is evident from a comparison of the actual frequency distribution for classifications with high credibilities with the corresponding normal distribution that the actual distributions are much more peaked than the normal distributions and the deviation from the normal form is so large that it cannot be attributed to mere chance. Indeed, an χ^2 test confirms this fact which can be directly inferred from an inspection of the charts. No attempt was made to adjust the actual distributions by means of a mathematical formula representing a theoretical distribution which is more peaked than the normal distribution because most of the statistical criteria of significance have been developed only for normal or near normal distributions.

(c) The actual distributions for classifications with low credibilities show much larger dispersion than those for classifications with high credibilities on each of the three charts. This fact is not surprising if one considers that the major portion of the variate x is due to the deviation of actual from "true" expected losses and that the classifications with low credibilities having much smaller exposure would naturally produce more widely fluctuating actual losses than classifications with large exposure which themselves may be considered as composed of several units of small exposure.

(d) A comparison of the frequency distributions of the deviations for serious, non-serious and medical pure premiums with high credibilities shows that the distribution for medical pure premiums is much more closely concentrated about the mean than that for non-serious pure premiums, and the distribution for non-serious pure premiums is in turn much more concentrated about the mean than the distribution for serious pure premiums. This suggests that the credibility criteria which were used to segregate the pure premiums with high credibilities are not statistically equivalent measures of exposure for the serious, non-serious and medical pure premiums. It appears that the credibility criteria for medical pure premiums are stricter than those for non-serious pure premiums and these are stricter than the criteria for serious pure premiums. It would be desirable, if the split of pure premiums into serious, non-serious and medical portions is to be retained at all, to devise credibility criteria which are statistically equivalent in the sense that, for pure premiums with equal credibility, actual losses concentrate in the same degree about the expected losses irrespective of whether we deal with serious, non-serious or medical losses.

(e) Since the table shown above is mainly self-explanatory, only an observation with respect to columns (7), (8) and (9) will be made. Although the distributions on charts I, II and III do not follow exactly the pattern of a normal distribution, it can be assumed that the means of these distributions are normally distributed with sufficient approximation as to permit the use of the integral of the normal distribution in estimating the probability that the deviations of the means from zero are as great as shown in column (4) of Table A. By doing this the probabilities in column (8) were obtained and, considering 2% as the level of significance, the conclusions in column (9) were formulated. It appears from this table that the deviation of the mean from zero is significant for all pure premiums with credibilities of less than 50% and also for non-serious pure premiums with credibilities of 50% and over. Since actual losses were modified by a common factor so as to produce an aggregate loss volume equal to that of the expected losses, the significantly negative mean for non-serious and medical pure premiums with credibilities of less than 50% indicates that, on the average, actual losses for pure premiums with low credibilities run somewhat lower than expected losses as compared with pure premiums with high credibilities. Pure premiums with low credibilities include a large portion of national pure premiums; this circumstance would therefore suggest that national pure premiums are somewhat too high, although the national pure premiums, if weighted by the product of payrolls and national credibility, are on the correct level. The significance tests for serious pure premiums with credibility under 50% are not quite conclusive because of the large number of value $x = -\infty$ which were excluded from the computation of the means.

F. *Test of the Relative Accuracy of Formula Pure Premiums Based on National Pure Premiums and of Formula Pure Premiums Based on Underlying Pure Premiums*

In order to give an illustrative application of the method evolved in the foregoing pages, a test has been made to measure the relative accuracy of the selected pure premiums prepared for the July 1, 1938 rate revision which are essentially formula pure premiums computed by weighting the indicated state pure premiums against the corresponding national pure premiums and a corresponding set of formula pure premiums based on weighting the indicated state pure premiums against the underlying pure premiums brought to the same level. This test was made only to illustrate the test method outlined and not because the author believes the present method of determining formula pure premiums should be abandoned in favor of formula pure premiums incorporating underlying pure premiums instead of national pure premiums. Since such a plan‡ has, however, been considered as a possible substitute for the present ratemaking procedure, the author believes that this test may also have some interest beyond that of a mere illustration. The test has been applied to all pure premiums with credibilities of less than 50%, since for pure premiums with higher credibilities the indicated state pure premium is the predominant part and, therefore, the substitution of underlying pure premiums for national pure premiums would have only a slight effect. Pure premiums for classifications which have no state credibility at all for any of the three pure premium parts

‡ See *A. G. Smith, Pure Premiums for Compensation Insurance,* P.C.A.S. Vol. XXIV, pp. 35ff.

were excluded because these classifications consist chiefly of non-reviewed classifications for which the underlying pure premiums are identical with the national pure premiums. The formula pure premiums obtained by weighting the state indication against the underlying pure premiums were used without any modification in order to simplify the rather burdensome numerical computations. If selected pure premiums based on underlying pure premiums should actually be applied, the method would certainly need some modification in order to avoid having the pure premiums for classifications with no, or a very low, state credibility perpetuated.

The results of this test are shown on chart IV. The solid line represents the frequency distribution of x_1 based on national pure premiums and the broken line represents the frequency distribution of x_2 based on underlying pure premiums. The graphs for x_1 differ somewhat from the corresponding graphs for pure premiums with credibilities under 50% shown on charts I, II and III because of the exclusion of all pure premiums of classifications with no state credibility for any part of the pure premium. The numerical characteristics of the distributions described by the graphs shown on chart IV are summarized in the following Table B:

TABLE B

Test of Significance of the Difference of Means and Variances for the Two Sets of Formula Pure Premiums

			Test of Significance of Means							
	Number m of P.P.'s Examined	$\sqrt{m}$	$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1 - \bar{x}_2$	$\sigma^2_{\bar{x}_1-\bar{x}_2} = \sigma_0^2$	$\sigma_{\bar{x}_1-\bar{x}_2} = \dfrac{\sigma_0}{\sqrt{m}}$	$\dfrac{\bar{x}_1 - \bar{x}_2}{\sigma_{\bar{x}_1-\bar{x}_2}}$	Probability that $\bar{x}_1 - \bar{x}_2$ Exceeds ±(6)	Difference of Means Significant (2% Level)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Serious P.P.	204	14.28	+.116667	+.119559	−.002892	.003258	.003997	− .724	.47	no
Non-Serious P.P.	195	13.96	−.047282	−.046205	−.001077	.001513	.002786	− .387	.70	no
Medical P.P.	182	13.49	−.011868	−.006154	−.005714	.001214	.002583	−2.215	.03	no

	Test of Significance of Difference of Variances										
					Assuming $r \leqq .85$						
									Probability that s Exceeds		
	σ_1^2	σ_2^2	$\Delta = \lvert\sigma_1^2 - \sigma_2^2\rvert$	$t = \dfrac{\sigma_0^2}{\Delta}$	Lower Limit for s	Upper Limit for s	$\dfrac{\log_e(16)}{1/\sqrt{m}}$	$\dfrac{\log_e(17)}{1/\sqrt{m}}$	(16) ± 1	(17) ± 1	Difference Between σ_1 and σ_2 Significant
(1)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Serious P.P.	.142530	.147300	.004770	.683	1.310	4.053	3.857	19.989	< .01	< .01	yes
Non-Serious P.P.	.092576	.092257	.000319	4.743	1.031	1.534	.417	5.975	.68	< .01	?
Medical P.P.	.041758	.041497	.000261	3.651	1.042	1.325	.555	3.792	.58	< .01	?

	Test of Significance of Difference of Variances						
	No Upper Limit for r Assumed						
					Probability that s Exceeds		
	Lower Limit for s	Upper Limit for s	$\dfrac{\log_e(23)}{1/\sqrt{m}}$	$\dfrac{\log_e(24)}{1/\sqrt{m}}$	(23) ± 1	(24) ± 1	Difference Between σ_1 and σ_2 Significant
(1)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
Serious P.P.	1.017	5.309	.235	23.844	.81	< .01	?
Non-Serious P.P.	1.002	1.534	.024	5.975	.98	< .01	?
Medical P.P.	1.003	1.325	.042	3.792	.97	< .01	?

Before explaining in detail the meaning of this table it is necessary to digress on the theory of tests of significance as applicable in this case.

The first test consists in determining whether the difference between the means of the distributions of x_1 and those of x_2 is significant. In reality, we are interested in the distribution of $x_{n,1}$ which measures the deviation from the "true" expected losses of the expected losses based on selected pure premiums derived from national pure premiums and in the distribution of $x_{n,2}$ which measures the deviation from "true" expected losses of the expected losses based on selected pure premiums derived from underlying pure premiums. Yet, since the "true" expected losses are unknown, $\bar{x}_{n,1}$ and $\bar{x}_{n,2}$ cannot be computed. It was, however, shown in formula (2) that:

$$(2') \qquad x_1 = x_a + x_{n,1} \qquad\qquad x_2 = x_a + x_{n,2}$$

and consequently

$$(7) \qquad x_{n,1} - x_{n,2} = x_1 - x_2 \text{ and } \bar{x}_{n,1} - \bar{x}_{n,2} = \bar{x}_1 - \bar{x}_2$$

where the bar indicates a mean. We can, therefore, test whether $\bar{x}_1 - \bar{x}_2$ is significant. For this purpose, the variance

$$(8) \qquad \sigma_0^2 = \sigma^2_{x_1-x_2} = \sigma^2_{x_{n,1}-x_{n,2}}$$

was determined and shown in column (7) of table B. If m is the number of values of $(x_1 - x_2)$, which is shown in column (2), the variance of the mean will be $\sigma^2_{\bar{x}_1-\bar{x}_2} = \sigma_0^2/m$ and the standard deviation $\sigma_0/\sqrt{m}$. This latter is shown in column (8) of Table B. It is assumed that the mean $(\bar{x}_1 - \bar{x}_2)$ is distributed normally with sufficient approximation to permit the use of a table of the integral of the normal distribution in order to determine the probability that the mean of $(x_1 - x_2)$ exceeds the amount shown in column (6). This is done in columns (10) and (11) and it is found that none of the differences between means is significant. In other words neither of the distributions of $x_{n,1}$ and $x_{n,2}$ contains a systematical bias with respect to the other.

Having thus satisfied ourselves that the two distributions have about the same mean we proceed with a study of the variances. In columns (12) and (13) of Table B are shown the variances σ_1^2 and σ_2^2 of x_1 and x_2 and in column (14) the absolute amount of the difference $\Delta = \sigma_1^2 - \sigma_2^2$. The latter is negative for serious pure premiums and positive for non-serious and medical pure premiums. Since

$$(6') \qquad \sigma_1^2 = \sigma_a^2 + \sigma_{n,1}^2 \qquad\qquad \sigma_2^2 = \sigma_a^2 + \sigma_{n,2}^2$$

this would indicate that

$\sigma_{n,1}^2 < \sigma_{n,2}^2$ for serious pure premiums

$\sigma_{n,1}^2 > \sigma_{n,2}^2$ for non-serious and medical pure premiums

Or, in words, the formula pure premiums based on national pure premiums are more accurate for serious pure premiums and the formula pure premiums based on underlying pure premiums are more accurate for non-serious and medical pure premiums. Before making such a statement, however, it is necessary to determine, by means of a test of significance, whether these results are not perhaps merely due to chance.

It is shown in the theory of the "Analysis of Variances"§ that the expression

$$\log_e \frac{\sigma}{\sigma'}$$

for two samples with variances σ and σ' and consisting of m and m' elements respectively and whose means are not significantly different is about normally distributed with mean *0* and standard deviation $\sqrt{\tfrac{1}{2}(\frac{1}{m} + \frac{1}{m'})}$, if the samples are supposed to be derived from a statistical population whose distribution is not too different from the normal distribution. If one wishes to determine whether the two variances do not differ from each other significantly or, in other words, whether the two samples may be considered as derived from the same parent population, one calculates the probability that $\log_e \frac{\sigma}{\sigma'}$ exceeds the observed value (using a table of the integral of the normal frequency distribution). If this probability is larger than the adopted level of significance, usually .05 or .02, then the observed difference in the variances is considered not significant and merely due to chance.

In our case we would have to consider the expression

$$(9) \qquad \log_e \frac{\sigma_{n,1}}{\sigma_{n,2}} = \log_e s, \qquad \text{where } s = \frac{\sigma_{n,1}}{\sigma_{n,2}}$$

§ See *R. A. Fisher, Statistical Methods for Research Workers,* 4th ed., Edinburgh and London 1932, pp. 206 ff.

which would be about normally distributed with a standard deviation of $\sqrt{\frac{1}{m}}$ where $m = m'$ is the number of pure premiums used which is shown in column (2) of Table B. Unfortunately we do not know $\sigma_{n,1}$ and $\sigma_{n,2}$ and must, therefore, estimate the expression $\log_e s$ on the basis of the available data. We shall try to obtain a lower and an upper limit for $\log_e s$. If then a test reveals that even the upper limit for $\log_e s$ is not significant or that already the lower limit is significant, we can draw a definite conclusion regarding the significance of $\log_e s$. In the present case the limits are, unfortunately, so wide apart that the lower limit is not significant and the upper limit is significant so that no final conclusion can be drawn.

We start by developing the general theory. From the actual experience we determine

$$(10)\quad \sigma_1^2 = \frac{1}{m}\Sigma\,(x_1 - \bar{x}_1)^2 = \sigma_a^2 + \sigma_{n,1}^2$$

$$(11)\quad \sigma_2^2 = \frac{1}{m}\Sigma\,(x_2 - \bar{x}_2)^2 = \sigma_a^2 + \sigma_{n,2}^2$$

$$(12)\quad \triangle = \sigma_1^2 - \sigma_2^2 = \sigma_{n,1}^2 - \sigma_{n,2}^2$$

$$(13)\quad \sigma_0^2 = \frac{1}{m}\Sigma\,[\,(x_{n,1} - \bar{x}_{n,1}) - (x_{n,2} - \bar{x}_{n,2})\,]^2$$

$$= \frac{1}{m}\Sigma\,(x_{n,1} - \bar{x}_{n,1})^2 - \frac{2}{m}\Sigma\,(x_{n,1} - \bar{x}_{n,1})\,(x_{n,2} - \bar{x}_{n,2}) + \frac{1}{m}\Sigma(x_{n,2} - \bar{x}_{n,2})^2$$

If $r = \dfrac{\Sigma\,(x_{n,1} - \bar{x}_{n,1})\,(x_{n,2} - \bar{x}_{n,2})}{\sigma_{n,1} \cdot \sigma_{n,2}}$ designates the correlation coefficient of $x_{n,1}$ and $x_{n,2}$ this can be written

$$(14)\qquad \sigma_0^2 = \sigma_{n,1}^2 - 2\,r\,\sigma_{n,1}\,\sigma_{n,2} + \sigma_{n,2}^2$$

r is a number which can vary from -1 to $+1$, but usually some plausible assumption regarding r can be made. If we write

$$(15)\qquad t = \frac{\sigma_0^2}{\triangle}$$

we can express s by means of the known quantity t and the estimated quantity r in the following manner:

$$(16)\qquad t = \frac{\sigma^2_{n,1} - 2\,r\,\sigma_{n,1}\,\sigma_{n,2} + \sigma^2_{n,2}}{\sigma^2_{n,1} - \sigma^2_{n,2}} = \frac{s^2 - 2\,r\,s + 1}{s^2 - 1}$$

and, hence,

$$(17)\qquad s = -\frac{r}{t-1} \pm \frac{1}{t-1}\sqrt{r^2 + t^2 - 1}$$

Let us, for the sake of simplicity, assign the subscript 1 to that distribution for which $\sigma^2_{n,1} > \sigma^2_{n,2}$ then Δ and, consequently, t will be positive. Since s is essentially a real and positive number, we derive from the above relation:

(a) If $t < 1$

(18) $r^2 > 1 - t^2$ and hence $r > +\sqrt{1 - t^2}$

since, for $r < 0$, t would be > 1.

(b) If $t > 1$ only the $+$ sign before the square root provides a suitable solution as, otherwise s becomes negative.

If the two sets of pure premiums are based on entirely different principles, we may assume that the correlation coefficient r of the deviations of the two sets of pure premiums from the "true" pure premiums and is zero. In this case

$$\sigma_0^2 = \sigma^2_{n,1} + \sigma^2_{n,2} > \Delta = \sigma^2_{n,1} - \sigma^2_{n,2}$$

and consequently

$$(19)\qquad t > 1 \quad s = +\frac{1}{t-1}\sqrt{t^2 - 1} = +\sqrt{\frac{t+1}{t-1}}$$

and we will be able to apply the test of significance to the natural logarithm of this quantity.

It cannot be said, however, that the two particular sets of formula pure premiums under investigation in this study are based on entirely different principles, as both have a certain portion of indicated state pure premiums in common and also because the underlying pure premiums are not entirely independent of the national pure premiums. We can, therefore, only assume that the correlation coefficient r is non-negative and, probably, not too near to unity. Let us, therefore, assume

(20) $\sqrt{1-t^2} \leqq r \leqq .85$ for $t < 1$ and $0 \leqq r \leqq .85$ for $t > 1$

then it can easily be shown that,

(a) if $t < 1$

$$\frac{.85}{1-t} - \frac{1}{1-t}\sqrt{t^2 - .2775} \leq s \leq \frac{.85}{1-t} + \frac{1}{1-t}\sqrt{t^2 - .2775} \tag{21}$$

(b) if $t > 1$

$$-\frac{.85}{t-1} + \frac{1}{t-1}\sqrt{t^2 - .2775} \leq s \leq \sqrt{\frac{t+1}{t-1}} \tag{22}$$

If we do not assume the probable, but somewhat arbitrary, upper limit of $+.85$ for r, the limits for s would be

(a) if $t < 1$

$$\frac{\sigma_1}{\sigma_2} \leq s \leq \frac{1+t}{1-t} \tag{23}$$

(b) if $t > 1$

$$\frac{\sigma_1}{\sigma_2} \leqq s \leqq \sqrt{\frac{t+1}{t-1}} \tag{24}$$

The lower and upper limits for s are shown in columns (16), (17), (23) and (24), separately for an assumed ceiling of .85 for r and for an unlimited r. The probabilities that $s = \frac{\sigma_{n,1}}{\sigma_{n,2}}$ exceeds these limits are shown in columns (20), (21) and (27), (28) respectively. It follows that, generally, the lower limits are not significant and the upper limits are, so that, the actual value of $s = \frac{\sigma_{n,1}}{\sigma_{n,2}}$, being somewhere in between, no definite conclusion can be drawn. Only the difference in the variances for serious pure premiums is significant, under the assumption $r \leqq .85$, even if $\frac{\sigma_{n,1}}{\sigma_{n,2}}$ does not surpass its lower limit. A definite answer can be obtained only if we assume that the correlation coefficient r is near its ceiling—an assumption which seems rather probable. In this case, we should have to conclude that formula pure premiums based on underlying pure premiums furnish a better fit than those based on national pure premiums for non-serious and medical pure premiums and a worse fit for serious pure premiums. The author has been at a loss to explain this difference in the behavior of the various types of pure premiums, unless the exclusion of a large number of values $x = -\infty$ and the previously discussed discontinuity of actual losses for small classifications has the effect of distorting the results for the serious pure premium group.

The difficulties encountered in testing the significance of the relative accuracy of selected pure premiums determined by the present ratemaking procedure and of formula pure premiums based on underlying pure premiums are not likely to recur if present selected pure premiums are compared with a set of pure premiums which are not based on similar principles. The author hopes to develop such a set of pure premiums in a subsequent part of this paper.

APPENDIX

A Method of Computing Sums of Products with the Help of Non-Multiplying Tabulating Machines

The method to be discussed is applicable wherever the total of the products of two different or identical sets of factors is to be computed, although a knowledge of the value of the individual products is not required. This type of problem occurs not only in statistics when variances or co-variances have to be determined, but also in casualty insurance wherever a set of payrolls has to be multiplied by a set of rates in order to determine the aggregate premium figure.

Let the first set of factors be $A_1, A_2, \cdots, A_i, \cdots$, and the corresponding second set of factors of the form $100\,a_1+10\,b_1+c_1$, $\cdots, 100\,a_i+10\,b_i+c_i, \cdots$ where a_i, b_i, c_i, are each one of the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. The sum $\Sigma\,[A_i\,x\,(100\,a_i+10\,b_i+c_i)]$ can be written $100\,\Sigma\,A_i\,a_i+10\,\Sigma\,A_i\,b_i+\Sigma\,A_i\,c_i$ and each of the three subsums can itself be split into ten minor totals, each of which has the same digit as a second factor and can, therefore, be written as a product of this digit with the corresponding total of the A_i. The use of tabulators is based on this resolution of the original total.

Each pair of factors A_i and $(100a_i + 10b_i + c_i)$ is punched on one punch card. These cards are sorted on the first digit a_i of the second factor and subtotals of A_i determined for each of the ten different digits a_i. In the same manner the subtotals corresponding to the different digits b_i and c_i are determined. The only computation necessary is the multiplication of the subtotals by the corresponding digits and that power of 10 which indicates the place of this digit and the totaling of all products thus obtained. The calculations are thus reduced to at the most twenty-seven multiplications with a one-digit factor (if the second factor has not more than three digits). This procedure saves a great deal of time where the number of products is very numerous.

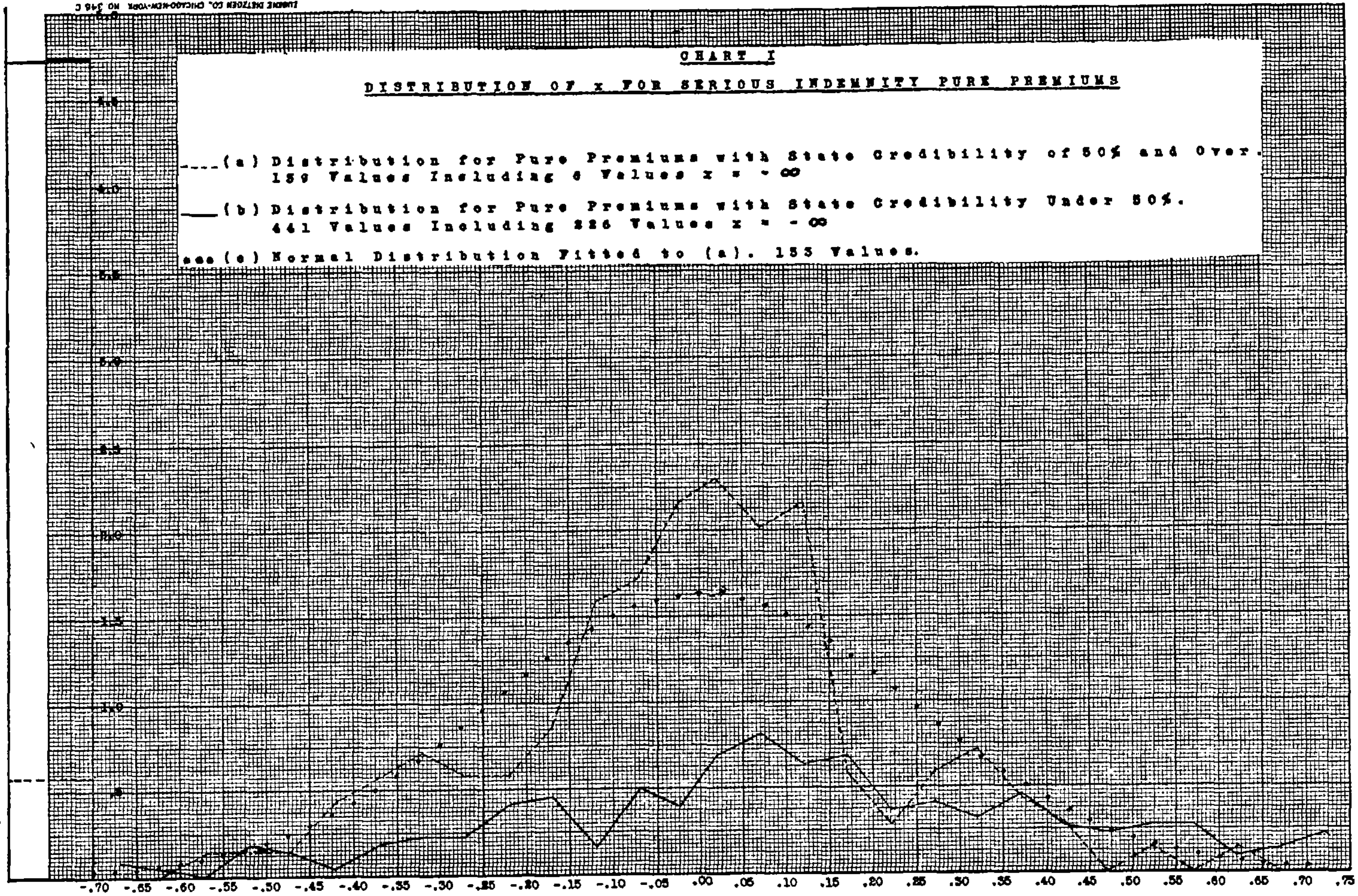


CHART I

DISTRIBUTION OF x FOR SERIOUS INDEMNITY PURE PREMIUMS

(a) Distribution for Pure Premiums with State Credibility of 50% and Over.
159 Values Including 6 Values x = -∞

(b) Distribution for Pure Premiums with State Credibility Under 50%.
441 Values Including 226 Values x = -∞

(c) Normal Distribution Fitted to (a). 153 Values.

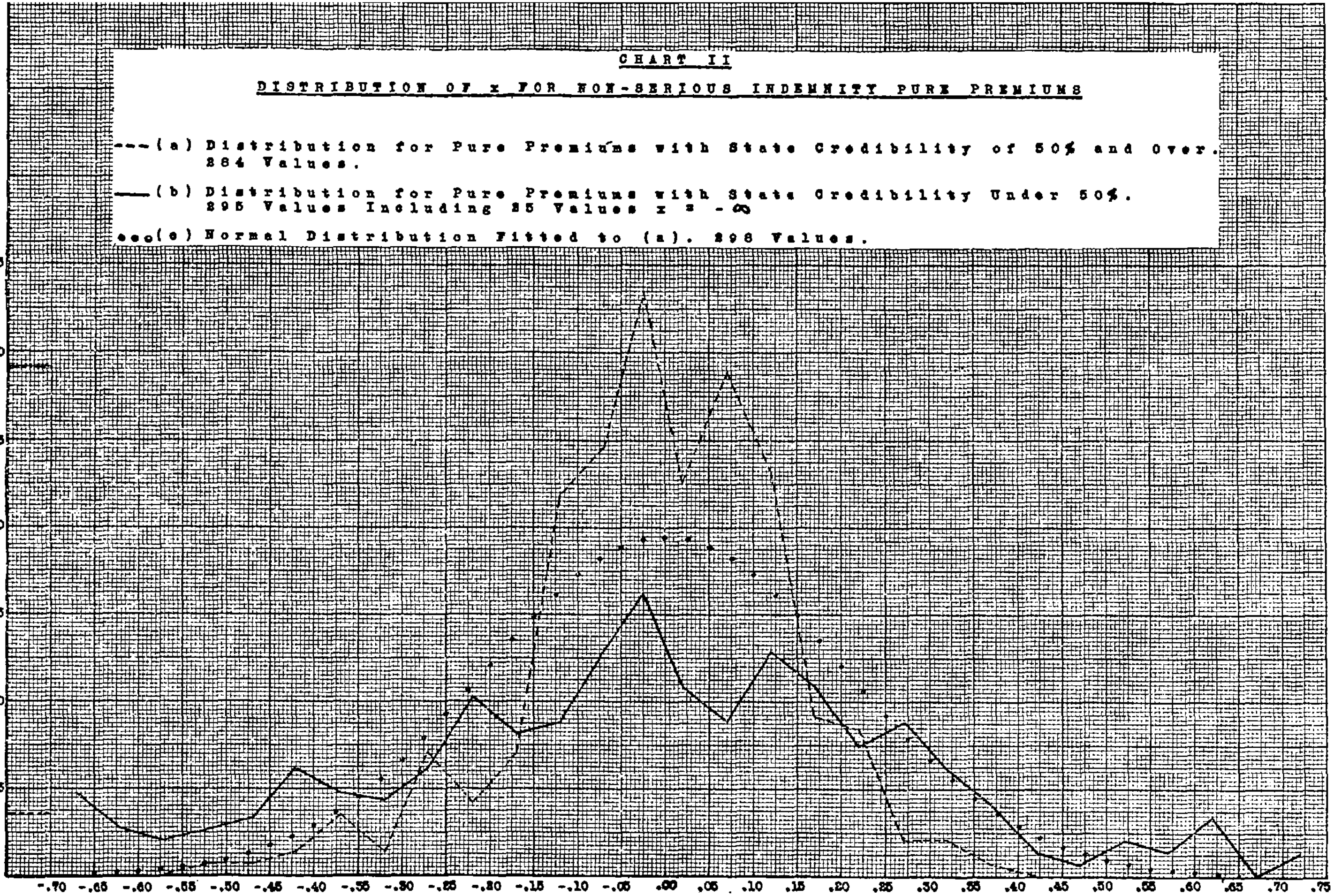


CHART II

DISTRIBUTION OF x FOR NON-SERIOUS INDEMNITY PURE PREMIUMS

---(a) Distribution for Pure Premiums with State Credibility of 50% and Over. 284 Values.

——(b) Distribution for Pure Premiums with State Credibility Under 50%. 295 Values Including 25 Values x = -∞

●●●(c) Normal Distribution Fitted to (a). 298 Values.

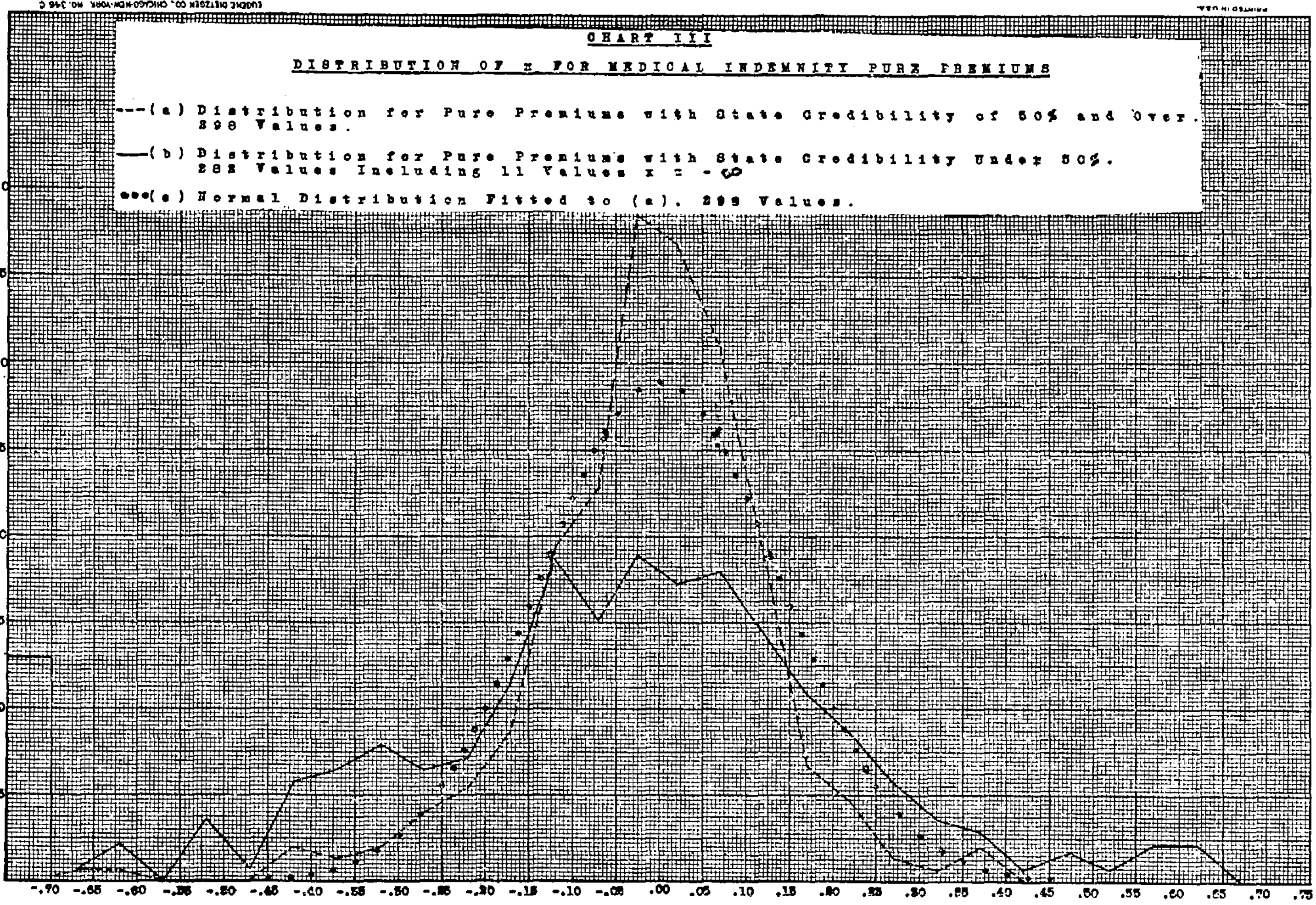


CHART III

DISTRIBUTION OF x FOR MEDICAL INDEMNITY PURE PREMIUMS

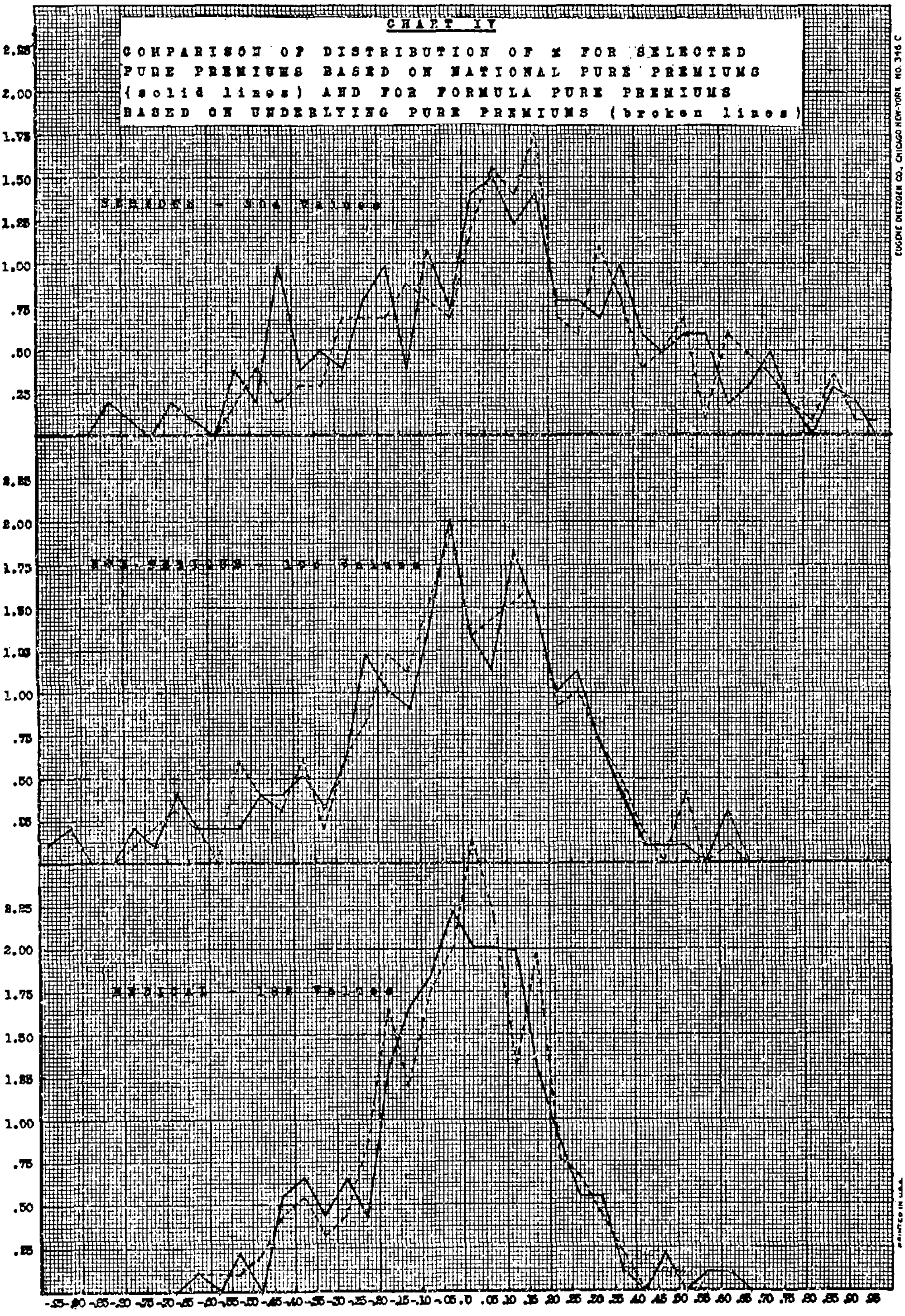


CHART IV

COMPARISON OF DISTRIBUTION OF x FOR SELECTED PURE PREMIUMS BASED ON NATIONAL PURE PREMIUMS (solid lines) AND FOR FORMULA PURE PREMIUMS BASED ON UNDERLYING PURE PREMIUMS (broken lines)

ON GRADUATING EXCESS PURE PREMIUM RATIOS

BY

PAUL DORWEILER

The objective in graduating data is to obtain their smooth rearrangement according to some pattern which there is reason to believe would fit the data if their volume were increased indefinitely. As some knowledge of the general characteristics of the data to be graduated is requisite in selecting the pattern to be used, it is desirable to make a preliminary survey of the material.

Nature of Data

The data discussed in this paper concern the excess pure premium ratio, which, with respect to an individual risk, may be defined as the ratio of the risk's losses in excess of a specific selected loss ratio to the total losses of the risk. For a group of risks the excess pure premium ratio for a given selected loss ratio r, is the ratio of the aggregate of the losses in excess of the loss ratio r in each risk to the aggregate total losses of the group. This may be expressed more precisely in mathematical form by the equation

$$y = \frac{\Sigma\,(L - r\,x)}{\Sigma\,L}, \text{ where}$$

y denotes the excess pure premium ratio for losses in excess of the loss ratio r.

L denotes the actual losses of the risk.

x denotes the risk premium.

r denotes the selected loss ratio, the losses above which are to be considered excess losses.

Σ denotes summation of the values for each risk in the group.

This equation is not general for it is necessary to place a restriction on the formula so that only the positive values of the term $(L - r\,x)$ are to be used. The selected loss ratio may be expressed either as an ordinary loss ratio r, that is as an index of the premium x which is taken as the base unity, or as an index of the expected loss ratio E. If the latter form is denoted by r' then r becomes $r'\,E$ in the formula.

Let the relation of the three variables; the excess pure premium ratio y, the selected loss ratio r, and the risk premium x be denoted in general by

$$y = F\ (r, x)$$

This general equation in rectangular coordinates (y, r, x) represents a surface. However, certain restrictions apply to the variables so that only a part of the surface is included in this study. A review of previous discussions of the subject and a study of exhibits showing these variables, together with reflection on the definitions of the terms will bring out these necessary restrictions:

x is positive, varying from 0 to ∞
r is positive, varying from 0 to ∞
y is positive and varies from 1 to 0.

If it is assumed that the experience of the risk under proper classification and on a correct premium level will approach the expected as the risk becomes indefinitely large* then still further limitations may be placed on these variables.

The data used in this paper pertain to Compensation Insurance exclusively. At the present time this is the only line having a large volume of experience available in a form that may be used readily for graduating excess pure premium ratios. As the characteristics of the excess pure premium ratios for various lines of Casualty Insurance are similar, the generalizations deduced from these data may be applied in varying degree to other lines.

Representation of Data in Three Dimensions

Assume that the variables y, r and x have been arranged in the definite order given in Table Ia, p. 148, or in Table I, p. 21, Vol. XX, P.C.A.S. In a system of rectangular coordinates take the risk premium x along the horizontal axis to the right, the selected loss ratio r along the horizontal axis toward the observer, and the excess pure premium ratio y along the vertical axis upward. The surface $y = F\ (r, x)$ and the coordinate planes YOX, YOR and

* This assumption is equivalent to the assumption in probabilities that the actual result will approximate the theoretically expected as the number of trials is increased indefinitely.

ROX will form a solid somewhat as indicated in Fig. I. If the figure is extended indefinitely to the right, a section parallel to the *YOR* plane approaches a right triangle. If the figure is extended indefinitely toward the observer, the height remains constant and equal to unity, but the width at the base decreases continually so that a section parallel to the *YOX* plane approaches a vertical straight line of unit length as the ultimate limit. If the figure is extended along the *ROX* plane when r and x are increased indefinitely, the height decreases and may be viewed ultimately as a mere film on the *ROX* plane.

Consider a section parallel to the *YOR* plane; its intersection with the surface consists of a curve which may be represented by the function $y = f(r)$. The curve starts at the point $(0, 1)$, decreases slowly as r is increased when the section is taken just to the left of the *YOR* plane, and decreases more rapidly at the beginning when the section is taken farther to the right. Ultimately the curve approaches the straight line $y + r/E = 1$, where E is the expected loss ratio, when the section is taken at the extreme right for indefinitely large risks.

Consider a section parallel to the *YOX* plane; its intersection with the surface is a curve, $y = f(x)$, which starts at the point $(0, 1)$ and decreases to the right, approaching an asymptote as x becomes indefinitely large. When $r < E$, the asymptote is the intersection line formed by the section and the plane represented by $y + r/E = 1$. When $r > E$, the asymptote is the line of intersection of the section with the *ROX* plane. The farther the section is taken from the *YOX* plane, i.e., the larger the r under consideration, the more rapidly the curve descends at the beginning. As r becomes extremely large, the curve approaches a vertical line of unit length as its limit.

Consider a section parallel to the *ROX* plane; its intersection with the surface represents the relation between the selected loss ratio r and the size of risk premium x for a fixed excess pure premium ratio y. It may be noted that the intersection is a curve which is asymptotic to the line where the section cuts the *YOR* plane at one end, and also asymptotic to the line where the section cuts the plane represented by $y + r/E = 1$ at the other.

The surface $y = F(r, x)$, intersects the *YOR* plane at $y = 1$ and the *YOX* plane at $y = 1$. In the region where $r < E$ the surface becomes asymptotic to the plane, $y + r/E = 1$, as x becomes indefinitely large. The surface also becomes asymptotic to the *YOR* plane as x decreases and r increases indefinitely. When both x and r are indefinitely increased the surface becomes asymptotic to the *ROX* plane. It should be noted that while the general shape of the surface in Fig. I is much affected by the relative size of the units chosen for y, r and x, the characteristics mentioned above are retained under any selected relativity of units.

Selection of Pattern

It is not practicable to use a general function representing such a complex surface as a pattern for graduating the excess pure premium ratios. It is practicable to use equations representing the curves formed by the intersection of the surface with planes parallel to one of the vertical coordinate planes as patterns. There is little interest in the relation of r and x for a given value of y, consequently the curves for sections parallel to the *ROX* plane will receive no further consideration. Primary interest exists in these relations:

1. The relation of y and r for a constant x, or the relation of the excess pure premium ratio and the selected loss ratio for a group of risks having approximately the same premium.
2. The relation of y and x for a constant r, or the relation of the excess pure premium ratio and the individual risk premium for a given selected loss ratio.

Relation of y and r, x constant

The characteristics for curves representing the first relation are those possessed by curves formed by the intersections of the surface $y = F\ (r, x)$ and planes parallel to the *YOR* plane. These characteristics may be recognized to some extent by using as a pattern equations in y and r, $y = f\ (r)$, which pass through the point $(0, 1)$ and become asymptotic to $y = 0$ as r is increased indefinitely. Among curves fulfilling these conditions are those represented by $y = 10^{-a\,r - b\,r^2}$, and $y = c^{-r^n}$. These equations might be used as patterns and their constants determined for each size of risk so as to produce good fits.

The excess pure premium ratios were determined by premium size groups of risks. Any irregularity in the experience of a group which affects any of the excess pure premium ratios for a given selected loss ratio r, will also affect the excess pure premium ratios for all selected loss ratios which are less than r. As a result, an abnormality in the experience will affect the whole curve, or a large portion of it. Deviations of this sort cannot be overcome by smoothing the data. The graduations for various sizes of x would result in curves which viewed laterally formed elements of a surface which still had troughs and ridges very much as in the original data. It would be expected that curves formed by the intersections of lateral sections with such a projected surface would require considerable smoothing to eliminate these troughs and ridges. For this reason no effort has been made here to consider the curves represented by $y = f\,(r)$ but rather to direct attention to the curves formed by the intersections of the surface with sections parallel to the YOX plane.

Relation of y and x, r constant

The characteristics of curves under the second relation are those possessed by curves formed by the intersection of planes parallel to the YOX plane and the surface, $y = F\,(r, x)$. These characteristics would be recognized if the graduation used as a pattern an equation, $y = f\,(x)$, whose graph passed through the point $(0, 1)$, then decreased and as x increased indefinitely approached a definite asymptote dependent on r. An equation of the graph possessing these characteristics is $y = a + b/c^{x^n}$, where a, b, c and n are constants to be determined so that the formula fits the data for the particular section corresponding to a specific selected loss ratio r. The condition imposed on a and b in the formula and the application of the normal equations, are discussed in Appendix I. As an illustration, the graduation of the excess pure premium ratios corresponding to the selected loss ratio .50 is given in Table III.

The ungraduated excess pure premium ratios shown in Table Ia were determined after the premium level had been adjusted to produce the expected loss ratio not only for the experiences as a whole but for each size of risk group. In Table Ib are shown the graduated values as determined by the method explained in Appendix I.

Generally the results shown in the Table Ib indicate a fair fit. On inspection it will be noted that the adjusted values for each selected loss ratio in the $4,000-5,000 premium size group are under the original values in each instance. This might indicate that while the equations used as the pattern in graduating may be made to fit fairly well for the range of risks over $5,000, there may be some doubt as to whether the formula has sufficient flexibility to fit the whole range of risks including those under $5,000. To test the flexibility of the formula, the method of graduation was applied to the range of risks extending in size from $10 to over $16,000, shown in Table V, p. 173, Vol. XIII, P.C.A.S. The results shown below indicate a reasonable fit. However, there is a wide spread in the original ratios, which are based on scant data, and any general smoothing would seem likely to succeed in bringing the adjusted values reasonably within the extremes. It may be shown that if the formula were extended clear to the zero point, it would not fit small hypothetical risks, for example $1 premium or less.

Lower Limit Risk Group	Actual Pure Prem. Ratio	Graduated Ratio	Lower Limit Risk Group	Actual Pure Prem. Ratio	Graduated Ratio
(1)	(2)	(3)	(1)	(2)	(3)
$ 10	.945	.929	$ 500	.652	.637
25	.884	.896	700	.541	.582
50	.834	.867	1,000	.540	.533
75	.852	.843	1,500	.436	.456
100	.821	.816	2,500	.414	.383
150	.756	.784	4,000	.223	.259
200	.704	.747	8,000	.169	.143
300	.720	.707	16,000	.028	.029
400	.752	.674			

Graphs of Excess Pure Premium Ratios—Unlimited Per Case Losses

Graphs for the graduated excess pure premium ratios for various selected loss ratios in Table Ib have been drawn and are shown in Chart I. To the right, beyond the range of the actual data the curves have been extended showing how they approach their asymptotes. To the left below the smallest premiums in the data the curves have been extended in broken lines through selected points determined from the formula.

It has been found convenient to use three-cycle semi-logarithm paper in representing the premium field ($1,000-1,000,000) under consideration. With this ruling of the paper it is possible to devote two-thirds of the chart to that part, approximately one-tenth of the premium field, which is of primary importance. It is possible to use four-cycle paper to extend the field down to $100 premium risks, or to use five-cycle paper to go down to the $10 premium risks, though the latter would be questionable. It would not be advisable to use the semi-logarithm paper if the field were to be extended to $1 risks, and obviously it would be impossible to use this paper if the field were extended to zero. In interpreting semi-logarithm charts it must be recognized that slopes and curves do not have the same meaning as in charts having uniform scales. The ogive form of the "10M" curve, and the similar form which the selected loss ratio curves assume if extended far enough to the left are due entirely to the use of the semi-logarithm paper with its constantly changing horizontal scale, and not to any property inherent in the curves.

Effect of Per Case Limit

The line marked "10M" separates Chart I into a left side in which a further limitation of primary losses to $10,000 per case can have no possible effect on the excess pure premium ratios because the per case limit is greater than the per aggregate limit implicit in the given selected loss ratio, and into a right side in which the restriction of cases to $10,000 may result in reducing the primary losses and consequently in increasing the excess losses. There are regions also to the right of the "10M" line where the $10,000 limit will have no effect. In the upper right of the chart, for example, correctly classified risks having premiums of $500,000 or more on a proper premium level would develop, almost to a mathematical certainty, loss ratios of say at least .15, even if individual cases were limited to $10,000. The amount that would be excluded from primary losses under the per case limit would in all probability already have been excluded under the small aggregate limit imposed by the low selected loss ratio. The upper right region excluded cannot be demarcated definitely for in going upward or to the right the effect of the per case limit becomes very small gradually, ultimately becoming infinitesimal.

The effect produced by imposing a maximum per case limit in addition to a per loss ratio limit may be determined largely from theoretical considerations. A study and interpretation of Fig. I, Table I, Chart I, and the definitions will show these deductions to be reasonable.

(a) Imposing a per case limit in addition to a per loss ratio limit will have no effect on the excess pure premium ratio if the per case limit is greater that the imposed per aggregate limit implicit in the selected loss ratio and the risk size. This condition prevails in the region to the left of the "10M" line in Chart I.

(b) For a given selected loss ratio which is greater than the expected, the per case limit will begin to be effective when the risk premium reaches the point where the selected loss ratio curve crosses the "10M" line in Chart I. The effect at first is small but gradually increases until the full value of .042 (see Table IV) has been attained.

(c) For selected loss ratios less than the expected, the per case limit becomes effective gradually after the selected loss ratio curve has intersected the "10M" curve, reaches a maximum some time later and then decreases until the effect disappears entirely in extremely large risks. To this general relation there are two exceptions, when the selected loss ratio is very small and also when the selected loss ratio lies between the expected loss ratio (.598) and one which is .042 × .598 or .025 less than the expected.

When the selected loss ratio is so small that the risk must become so large before the selected loss ratio curve crosses the "10M" line that virtually every risk, even with losses limited on a per case basis, will develop a loss ratio not less than the given loss ratio r, then the presence of a maximum limit per case will produce no effect on the excess pure premium ratios.

When the selected loss ratio lies between the expected and one which is .025 less than the expected, the effect on indefinitely large risks will approach and ultimately equal the difference between the selected loss ratio and one which is .025 less than the expected when this difference is expressed in terms of the expected loss ratio.

Effect Expressed with Use of Symbols

These relations may be expressed more precisely with the aid of symbols;

where l denotes the per case limit on losses, \$10,000
r denotes the selected loss ratio
x denotes the risk premium
E denotes the expected loss ratio, (.598)
y denotes the excess pure premium ratio
e denotes the increment on y due to superimposing a per case limit l on a per loss ratio limit r.

then for $r > 0$, $e = 0$ if $x < l/r$
$r > E$, e begins at point where $x = l/r$, increases to .042, for $x = \infty$
$E > r > (E - .025)$ e begins at point where $x = l/r$, increases to $[.025 - (E - r)]/E$ for $x = \infty$
$(E - .025) > r$, e begins at point where $x = l/r$, increases first and then decreases to 0, for $x = \infty$

The equations of the asymptotes of the curves $y = f(x)$ for the various selected loss ratios with unlimited losses and with limited losses are as follows:

	Equations of	*Asymptotes*
Value of r	*Unlimited Losses*	*Limited Losses*
$r > E$	$y = 0$	$y = .042$
$E > r > (E - .025)$	$y = (E - r)/E$	$y = .042$
$r < (E - .025)$	$y = (E - r)/E$	$y = (E - r)/E$

Graphs of Excess Pure Premium Ratios—Limited Per Case Losses

The graphs for selected loss ratios with losses limited on a per case basis might be constructed directly from actual excess pure premium ratios calculated by omitting the excess per case losses in obtaining the numerator of the ratio but using unlimited losses for the denominator. The excess pure premium ratios could then be graduated by some process similar to that used for the excess pure premium ratios with unlimited losses in Appendix I. This procedure would produce different adjusted pure premium ratios for each per case limit even for the low selected loss ratios and small risks where the limit could not possibly affect the result. The method followed here consists of using the graduated curves for the unlimited losses as basic and then adapting them graphically to conform to the known requirement of having the departure begin at the point where the "10M" line crosses the curves, of approaching the new asymptote at the extreme right of the chart when the risk becomes indefinitely large, and of passing through some of the intermediate points determined from a comparison of the excess pure premium ratios calculated first with unlimited losses and then with losses limited on a per case basis.

The effect of the per case limit is given in Table IVa which shows the remainders when the actual excess pure premium ratios with limited per case losses are subtracted from the corresponding actual excess pure premium ratios without per case limits on losses. The portion of the total losses excluded from primary losses with both per loss ratio and per case limits on losses is equal to the excess pure premium ratio calculated with excess losses unlimited plus .042, the value of the New York losses eliminated by the excess per case limit of $10,000. The net increase of the non-primary or excess losses in excess of a given selected loss ratio, combined with a $10,000 per case limit, over the non-primary losses without per case limits is .042 minus the values shown in Table IVa. As might be expected on account of the small volume of experience, the per case limits affected the various premium size groups differently and in not a single group was the .042 average derived from all New York losses combined reproduced in Table IVa. To eliminate these variations, all the differences in Table IVa were expressed as indexes of the left hand column, then multiplied by .042. These results are shown in Table IVb. To obtain the net increase in non-primary losses the values in Table IVb must be subtracted from .042. These differences are shown in Table IVc. If the values in Table IVc are first smoothed and expressed in a new Table IVd, then with proper interpolations this Table IVd may be used to determine the effect of the per case limit for intermediate points. Using the value of certain intermediate points from IVd along with the known relations at the point where the selected loss ratio curve crosses the "10M" line, and knowledge of the asymptotes for curves with per case limit losses, the necessary adaptations to the Chart I curves, were made graphically. The new curves are shown in Chart II, which is a reproduction of the New York Board chart.

In actual practice the relations of y, r and x are usually shown in charts in which the excess pure premium ratio y is plotted against the selected loss ratio r for specific risk sizes x. Chart I and Chart II may be readily transformed into new charts having these relations by taking the vertical line corresponding to a definite risk size x, and plotting the intersections of this line with the selected loss ratio curves onto a new rectangular chart in which the ordinates represent excess pure premium ratios and the abscissas represent the selected loss ratio. The points pertaining to a definite risk size are then joined and the connecting curve is designated by the risk premium size. Such a transformation of Chart I has been made and is shown as Chart III. A similar transformation of Chart II is shown as Chart IV.

In summary it is apparent that the selection of the equation used is arbitrary. The advantages that may be credited to it are its relative simplicity, its not too restricted flexibility, and its adaptability to the conditions at the very beginning, the zero point, and at the extreme end, the indefinitely large risk. The disadvantages that may be charged against it are that it lacks extended flexibility, that it is necessary to give special arbitrary treatment to zero values and that it is not well adapted to apply to actual experience, but really requires prior adjustment of experience to the expected loss ratio basis.

It is apparent too, that the procedure is somewhat hybrid using first algebraic methods to graduate the excess pure premium ratio for unlimited loss experience and then superimposing graphic methods to depict the deviations caused by the per case limit on losses. The choice of this procedure arose out of a desire to consider the excess pure premium ratios for selected excess loss ratios with various per case limits in terms of the basic. It will be recalled that to the left of the point where the per case limit equals the aggregate loss limit on the selected loss ratio curve, no effect results from placing an additional per case limit on the losses, and it would seem desirable to leave that portion of the ungraduated curve the same irrespective of any later effect due to the use of per case limits on losses.

Finally, there may be serious question whether at this stage of our knowledge such a refinement of graduated pure premium ratios is warranted. Practically the same result could have been accomplished by a simple graphical method, particularly where large aggregates of experience are involved. Admittedly, at this time the more fundamental considerations of whether the excess pure premium ratios should be based on all industry combined or should vary by industry, whether they should be based on actual experience or on adjusted experience, are of greater significance than the refinement brought about by any graduating process. Recognizing the relative importance of these problems, it seems, nevertheless, that the study of the problem of graduation of excess pure premium ratios by the Actuarial Committee of the New York Compensation Insurance Rating Board, in which the method described in this paper was developed, has been worth while if not for the direct results produced in greater refinements, then for the development of a more intimate knowledge of the behavior of excess pure premium ratios.

APPENDIX I

Graduating Excess Pure Premium Rates by Method of Least Squares

(1) Let $y = a + b/c^{x^n}$

Then $(y - a)/b = 1/c^{x^n}$

$x^n \log c = -\log [(y - a)/b]$

$n \log x + \log \log c =$
$\log \{-\log [(y - a)/b]\}$

where $y =$ excess pure premium ratio
$x =$ risk premium in thousands
$r =$ selected loss ratio
a, b, and c are constants, to be determined for each r
$a = (E - r)/E$
$b = 1 - a = r/E$
$E =$ expected loss ratio, .598

(2) $n \log x + B - A = 0$

where $B = \log \log c$
$A = \log \{-\log [(y - a)/b]\}$

When formula (2) is applied to the pure premium ratios corresponding to a selected loss ratio r the values for $\log x$ and A may be determined for each of the fourteen risk premium groups in Table Ia. The problem is to determine in accordance with the method of least squares, n and B and then c so that equation (1) will represent the best fit for the fourteen points.

The normal equations for n and B in (2) are:

$$
\begin{aligned}
&n\,\Sigma \log x + \Sigma B - \Sigma A = 0 \\
&n\,\Sigma\,(\log x)^2 + B\,\Sigma \log x - \Sigma A \log x = 0.
\end{aligned}
$$

It is worth while when applying the method of least squares repeatedly to a set of data as in Table Ia to calculate an auxiliary table as an aid in solving the normal equations. Table II has been made for this purpose. As an illustration the process of graduating the excess pure premium ratios for the selected loss ratio .50 in Table Ia will be shown in detail.

$$
\begin{aligned}
&a = (.598 - .50)/.598 = .1639 \\
&b = .50/.598 = .8361 \\
&y = .1639 + .8631/c^{x^n} \\
&n \log x + B - A = 0 \\
&\qquad\qquad \text{where } B = \log \log c \\
&\qquad\qquad\qquad\quad A = \log \{-\log [(y - .1639)/.8361]\}
\end{aligned}
$$

The development of the normal equations requires the preliminary calculation of coefficients and constants which may be made most conveniently in some tabular form. In Table III, Columns 1-10, which are self explanatory, these calculations have been made. From Table III and the auxiliary Table II the normal equations may be written as:

$$
\begin{aligned}
18.35278\,n + 14\,B + 1.99797 &= 0 \\
26.72278\,n + 18.35278\,B + 1.85452 &= 0
\end{aligned}
$$

The solution of the normal equations may be obtained more readily by passing directly to the derived equation for B given below Table II and substituting therein values taken from columns 8 and 10 of Table III and from columns 4, 6 and 9 of Table II.

Solving

$$
\begin{aligned}
B &= -.518998 \\
\log c &= .30269 \\
c &= 2.0077 \\
n &= .28704
\end{aligned}
$$

Substituting these values equation (3) becomes:

$$y = .1639 + .8361/2.0077^{x^{.28704}}$$

The adjusted y's are calculated in Table III, Columns 11-16, and entered on line $r = .50$ in Table Ib. If a similar procedure is followed for each value of r given in Table Ia; then the adjusted values in Table Ib will be determined.

There is one difficulty inherent in the formula that arises

$$\begin{array}{ll} \text{when } y = 0, & \text{for } r > E \\ \text{and } y = a & \text{for } r < E \end{array}$$

In this case infinite values are introduced into Table III, and consequently into the normal equations giving some terms such great weight that the resulting curve becomes a straight line—its asymptote. This invalidates the procedure making other recourses necessary. To circumvent this difficulty two courses may be followed. The zero value point may be omitted entirely, which amounts to giving no weight whatever to the experience, or a small arbitrary value may be used. This value should be small enough so that its effect is to depress the resulting curve below the curve that would be obtained if the point were omitted entirely. When there are zero values for several consecutive risk size groups, only those corresponding to the *lower* premium size groups need be given arbitrary values, the others being omitted.

If the premium level of each premium size group had not been adjusted so as to produce the expected loss ratio E for the group, then such additional difficulties would arise in groups having redundant premiums where the excess pure premium ratio might become less than a—the ordinate of the asymptote—that the formula would become useless.

Relation of Parameters a, b, c and n

The selection of the formula $y = a + b/c^{x^n}$ as a pattern creates an interest in the interrelations of the parameters a, b, c and n. The relation of a and b as connected with r and E which has already been stated arises from the conditions which require the graph to pass through $(0, 1)$ at the left and to be asymptotic to $y = (E-r)/E$ if $r < E$ and asymptotic to $y = 0$ if $r > E$. These relations are fairly evident.

The relations of c and n to each other and the other parameters are not so clear. As x and y are taken positive and as $y < 1$, it follows that c must be greater than one. It appears from empirical relations that c is approximately at a minimum when $r = E$ and increases as r moves away from E in either direction. The behavior of n is more obscure. It may be shown that for $r > E$ the values of n should be equal and possibly this relation holds for $r < E$. This means that a constant n should produce the best fit for the surface over the region where $r > E$. An interpretation of the varying n's may be given as meaning that each n produces the best fit according to the standards of the method of least squares for the excess pure premium ratios corresponding to the specific value selected for r and the particular groupings of risks as used here. Any rearrangement of the premium size groupings would in general produce a different set of n's.

The table following shows the values of c and n corresponding to the various selected risk ratios used in the graduation.

r	a	b	c	n
.10	.8328	.1672	4.4104	.43904
.20	.6656	.3344	3.1096	.35887
.30	.4983	.5017	2.4572	.34931
.40	.3311	.6689	2.0878	.34099
.50	.1639	.8361	2.0077	.28704
.60	0	1.0000	1.9179	.24892
.70	0	1.0000	1.9921	.29182
.80	0	1.0000	2.0741	.32321
.90	0	1.0000	2.1001	.36388
1.00	0	1.0000	2.1514	.39212
1.25	0	1.0000	2.2152	.46276
1.50	0	1.0000	2.5142	.46944
2.00	0	1.0000	3.1729	.47853
3.00	0	1.0000	4.9151	.46631

$a = (.598 - r)/.598$, $b = 1 - a$

If $r = .598$, $a = 0$, and $b = 1$

FIGURE I

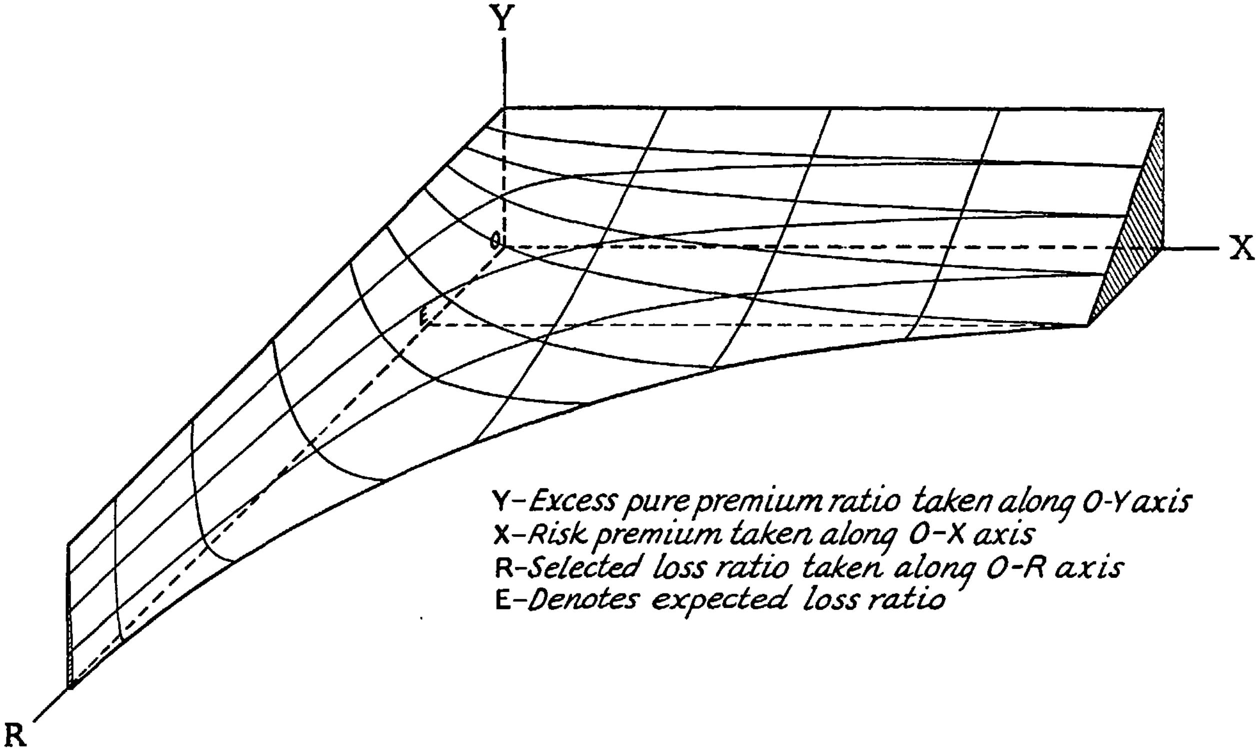

Y
X
R
O
E
Y–Excess pure premium ratio taken along O-Y axis
X–Risk premium taken along O–X axis
R–Selected loss ratio taken along O–R axis
E–Denotes expected loss ratio

TABLE Ia

Actual Pure Premium Ratios for Excess Limits per Loss Ratio

Table showing pure premium ratios—ratios of losses in excess of selected risk loss ratios to total losses—for various selected risk loss ratios by size of risk groups. New York Compensation Experience. All Industry Combined: Policy Years 1936-1937 for risks under $10,000 premium. Policy Years 1934-1937 for risks over $10,000 premium.

Selected Risk Loss Ratios	a b c	Lower Limits of Premium Size Groups in $1,000 Units Average Risk Premium of Groups in $1,000 Units Number of Risks in Groups													
	a	4.0	5.0	7.0	8.0	9.0	10.0	15.0	20.0	25.0	30.0	40.0	50.0	75.0	100.0
	b	4.6	6.1	7.5	8.1	9.8	11.8	18.0	22.1	25.9	34.9	48.6	60.8	85.5	127.4
	c	940	1025	328	260	222	916	365	205	126	118	68	67	21	15
00%		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
10		.845	.843	.838	.840	.834	.834	.833	.833	.833	.833	.833	.833	.833	.833
20		.720	.709	.694	.700	.688	.684	.677	.671	.673	.676	.671	.668	.667	.666
30		.619	.595	.574	.567	.559	.553	.537	.527	.527	.534	.524	.511	.513	.499
40		.537	.502	.481	.466	.449	.447	.424	.404	.400	.406	.401	.369	.364	.335
50		.470	.425	.407	.385	.356	.365	.332	.310	.297	.299	.302	.249	.232	.204
60		.416	.361	.349	.321	.284	.301	.259	.226	.221	.220	.224	.162	.128	.111
70		.369	.307	.300	.266	.225	.249	.201	.166	.159	.157	.163	.099	.073	.052
80		.331	.263	.262	.221	.181	.208	.156	.122	.112	.124	.113	.060	.036	.029
90		.299	.228	.233	.186	.147	.174	.124	.091	.080	.086	.074	.032	.014	.015
100		.270	.199	.205	.156	.119	.146	.099	.069	.056	.071	.050	.013	.003	.006
125		.211	.142	.152	.100	.070	.092	.058	.040	.024	.046	.015	.000	.000	.000
150		.168	.101	.111	.066	.042	.058	.033	.028	.008	.033	.003	.000	.000	.000
200		.110	.053	.064	.037	.017	.025	.013	.008	.001	.021	.000	.000	.000	.000

TABLE Ib
Graduated Pure Premium Ratios for Excess Limits per Loss Ratio

Table showing the data in Table Ia after graduation by method outlined in Appendix I.

Selected Risk Loss Ratios	a b c	Lower Limits of Premium Size Groups in $1,000 Units Average Risk Premiums of Groups in $1,000 Units Number of Risks in Groups													
	a b c	4.0 4.6 940	5.0 6.1 1025	7.0 7.5 328	8.0 8.1 260	9.0 9.8 222	10.0 11.8 916	15.0 18.0 365	20.0 22.1 205	25.0 25.9 126	30.0 34.9 118	40.0 48.6 68	50.0 60.8 67	75.0 85.5 21	100.0 127.4 15
00%		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
10		.842	.839	.837	.837	.836	.835	.834	.833	.833	.833	.833	.833	.833	.833
20		.713	.704	.698	.696	.691	.687	.679	.676	.674	.671	.669	.668	.667	.666
30		.607	.591	.580	.576	.567	.558	.541	.534	.529	.521	.514	.510	.505	.502
40		.525	.503	.486	.480	.466	.452	.424	.412	.403	.388	.373	.365	.354	.345
50		.448	.424	.405	.399	.383	.367	.333	.318	.306	.285	.264	.251	.233	.215
60		.386	.361	.341	.334	.317	.300	.262	.245	.231	.207	.180	.164	.139	.113
70		.341	.312	.289	.281	.262	.242	.201	.183	.168	.143	.118	.102	.080	.059
80		.303	.271	.246	.239	.218	.198	.156	.138	.124	.100	.077	.064	.046	.030
90		.275	.240	.213	.205	.183	.161	.119	.102	.089	.067	.047	.037	.024	.013
100		.249	.212	.184	.176	.154	.133	.092	.076	.064	.046	.030	.022	.013	.006
125		.200	.160	.132	.124	.102	.082	.048	.036	.028	.016	.008	.005	.002	.001
150		.152	.117	.093	.086	.068	.053	.028	.019	.014	.008	.003	.002	.001	.000
200		.091	.065	.048	.043	.032	.023	.010	.006	.004	.002	.001	.000	.000	.000

CHART I.

EXCESS PER LOSS RATIO PURE PREMIUM RATIOS FOR SELECTED LOSS RATIOS (S.L.R)

Data from Table I-b.

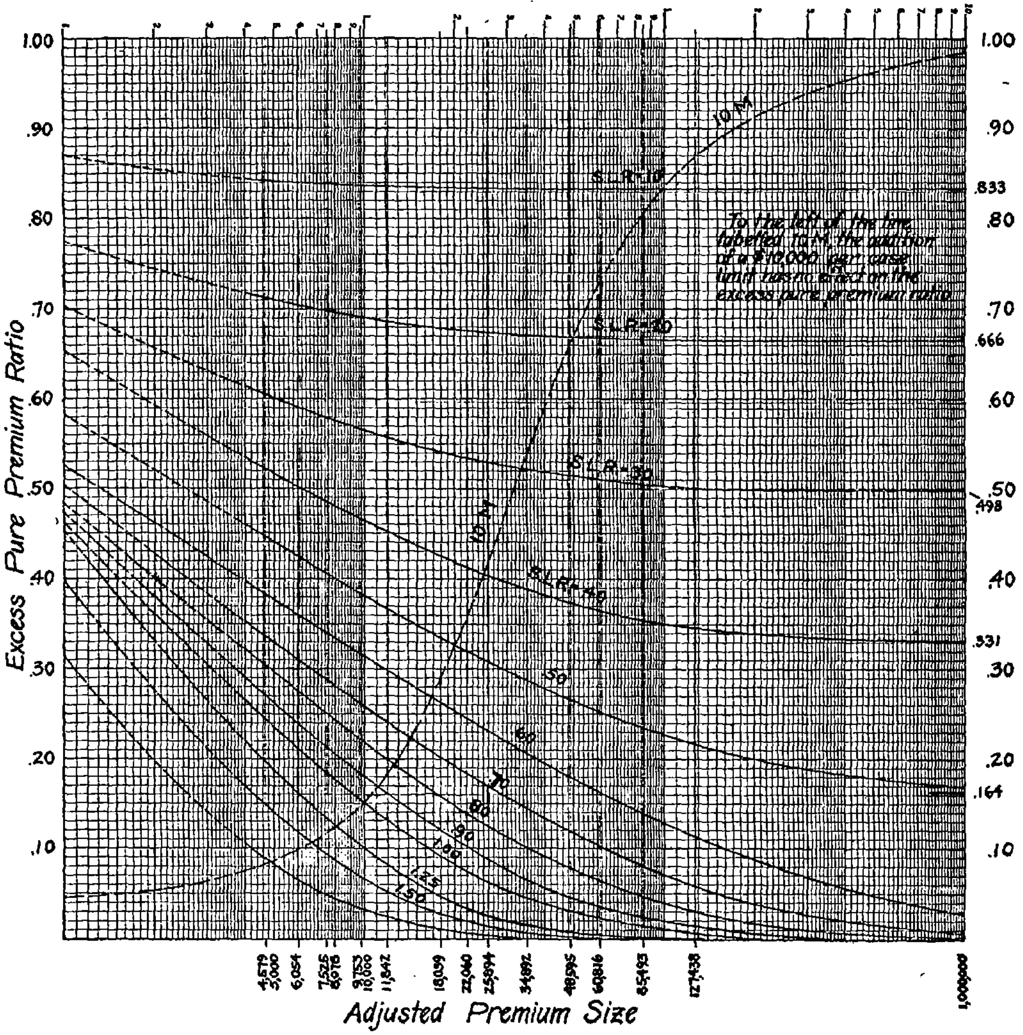
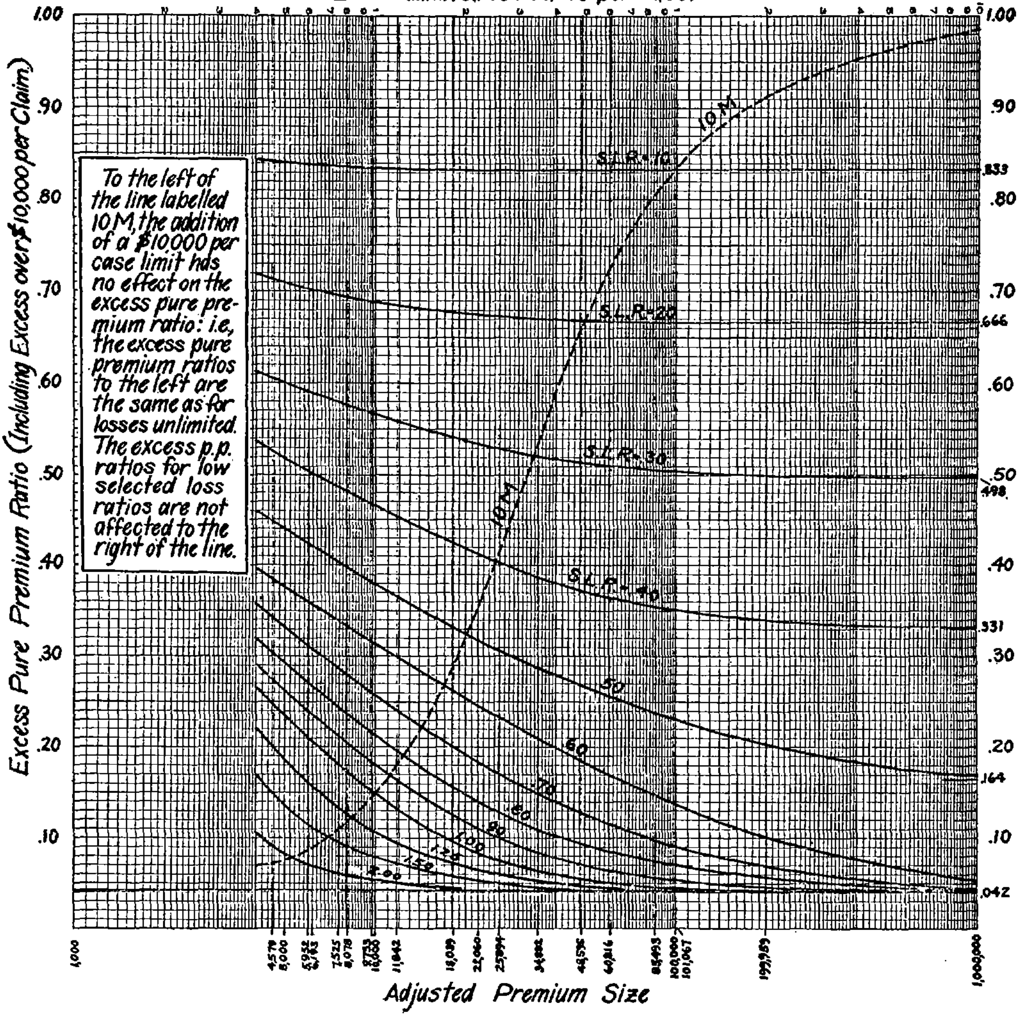


CHART II.

EXCESS PER LOSS RATIO PURE PREMIUM RATIOS FOR SELECTED LOSS RATIOS (S.L.R.)

Graduated Ratios Derived from Actual Values (Col. a) of C.I.R.B. Exhibit B, 1/17/1941. $10,000 Loss Limitation Increment Added Graphically. All Industries. Risks over $4,000. Losses Limited to $10,000 per case.



To the left of the line labelled 10 M, the addition of a $10000 per case limit has no effect on the excess pure premium ratio: i.e., the excess pure premium ratios to the left are the same as for losses unlimited. The excess p.p. ratios for low selected loss ratios are not affected to the right of the line.

CHART III

Based on Chart I.

Ratio to Total Losses of Losses in Excess of Various Selected Loss Ratios per Risk. Individual Losses Unlimited

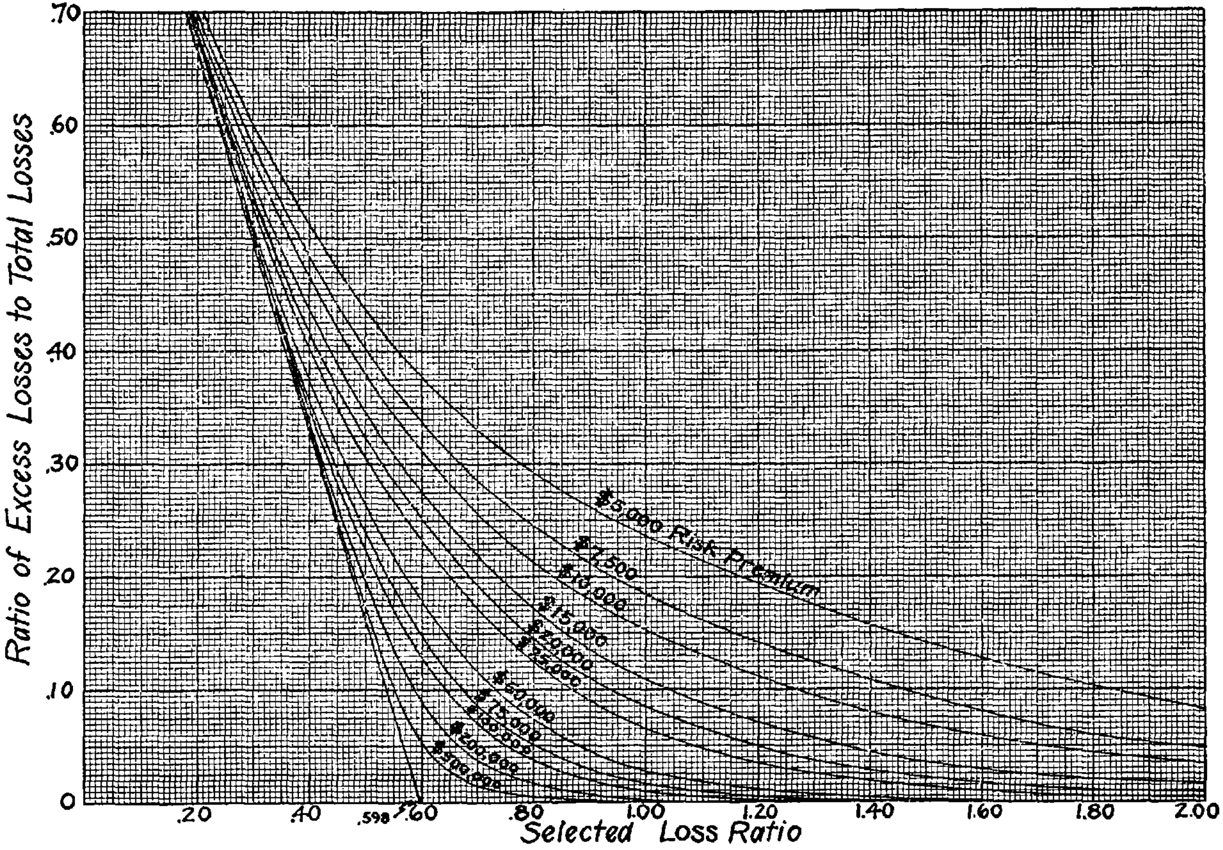


CHART IV

Based on Chart II.

Ratio to Total Losses of Losses in Excess of $10,000 Limit per Claim and Limited Losses in Excess of Various Selected Loss Ratios per Risk.

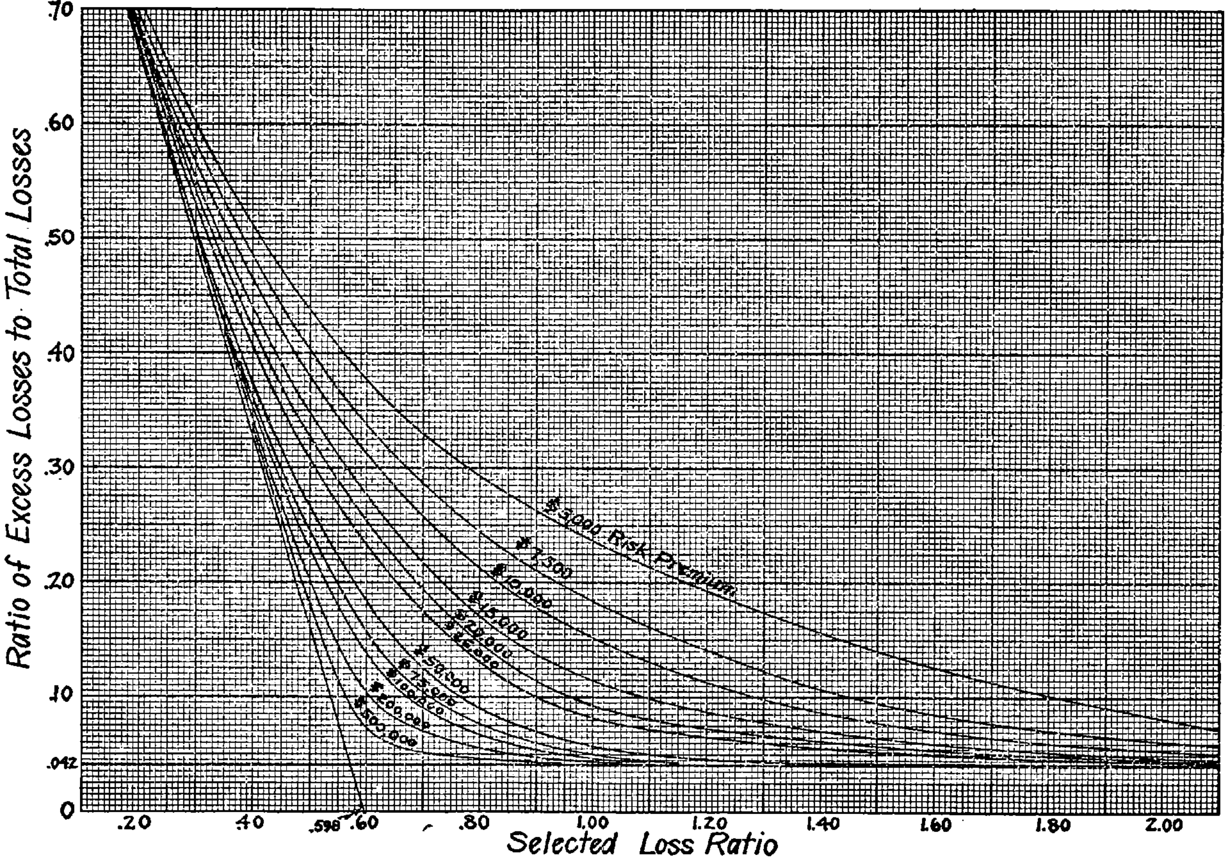


TABLE II

Auxiliary Table for Normal Equations

N	x	log x	Σ log x	(log x)^2	Σ(log x)^2	$\frac{N}{\Sigma \log x}$	$\frac{\Sigma \log x}{\Sigma (\log x)^2}$	(7)-(8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	4.579	.66077	.66077	.43662	.43662	1.5134	1.5134	-
2	6.054	.78204	1.44281	.61159	1.04821	1.38618	1.37645	.00973
3	7.525	.87651	2.31932	.76827	1.81648	1.29348	1.27682	.01666
4	8.078	.90730	3.22662	.82319	2.63967	1.23969	1.22236	.01733
5	9.753	.98914	4.21576	.97840	3.61807	1.18603	1.16520	.02083
6	11.842	1.07343	5.28919	1.15225	4.77032	1.13439	1.10877	.02562
7	18.039	1.25621	6.54540	1.57806	6.34838	1.06945	1.03103	.03842
8	22.060	1.34361	7.88901	1.80529	8.15367	1.01407	.967541	.04653.
9	25.894	1.41320	9.30221	1.99713	10.15080	.967512	.916402	.051110
10	34.892	1.54273	10.84494	2.38002	12.53082	.922089	.865461	.056628
11	48.595	1.68659	12.53153	2.84459	15.37541	.877786	.815037	.062749
12	60.816	1.78402	14.31555	3.18273	18.55814	.838249	.771389	.066860
13	85.493	1.93193	16.24748	3.73235	22.29049	.800124	.728897	.071227
14	127.438	2.10530	18.35278	4.43229	26.72278	.762827	.686784	.076043

Normal Equations may be written

$$n + NB/\Sigma \log x - \Sigma A/\Sigma \log x = 0$$

$$n + B\Sigma \log x/\Sigma(\log x)^2 - \Sigma(A \log x)/\Sigma(\log x)^2 = 0$$

$$\left[N/\Sigma \log x - \Sigma \log x/\Sigma(\log x)^2\right] B = \Sigma A/\Sigma \log x - \Sigma(A \log x)/\Sigma(\log x)^2$$

where $B = \log \log c$

$$A = \log\left\{- \log\left[(y - a)/b\right]\right\}$$

$$\Sigma B = NB$$

TABLE III

Calculation sheet for fitting, by method of least squares, the formula, $y = .1639+.8361/c^x$, to the excess pure premium ratios for selected loss ratio .50 in Table Ia. Adjusted excess pure premium ratios in Column 16, Table III are entered for selected loss ratio .50 in Table Ib.

x	y	(2)-.1639	(3)/.8361	log(4) + 10	-(5)+10	log (6) + 10	(7)-10	log x	(8)×(9)	.28704 × (8)	antilog (11)	.30269 ×(12)	-(13) +10	antilog [(14)-10]	.1639 + .8361×(15)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
4.579	.470	.3061	.36610	9.56360	.43640	9.63988	-.36012	.66077	-.23796	.18967	1.5476	.46844	9.53156	.34006	.448
6.054	.425	.2611	.31228	9.49454	.50546	9.70369	-.29631	.78204	-.23173	.22448	1.6768	.50755	9.49245	.31078	.424
7.525	.407	.2431	.29075	9.46352	.53648	9.72955	-.27045	.87651	-.23705	.25159	1.7848	.54024	9.45976	.28824	.405
8.078	.385	.2211	.26444	9.42233	.57767	9.76168	-.23832	.90730	-.21623	.26043	1.8215	.55135	9.44865	.28096	.399
9.753	.356	.1921	.22976	9.36127	.63873	9.80532	-.19468	.98914	-.19257	.28392	1.9227	.58198	9.41802	.26183	.383
11.842	.365	.2011	.24052	9.38115	.61885	9.79159	-.20841	1.07343	-.22371	.30812	2.0329	.61534	9.38466	.24247	.367
18.039	.332	.1681	.20105	9.30330	.69670	9.84305	-.15695	1.25621	-.19716	.36058	2.2939	.69434	9.30566	.20214	.333
22.060	.310	.1461	.17474	9.24239	.75761	9.87945	-.12055	1.34361	-.16197	.38567	2.4304	.73566	9.26434	.18380	.318
25.894	.297	.1331	.15919	9.20192	.79808	9.90205	-.09795	1.41320	-.13842	.40564	2.5447	.77026	9.22974	.16972	.306
34.892	.299	.1351	.16158	9.20839	.79161	9.89851	-.10149	1.54273	-.15657	.44283	2.7722	.83912	9.16088	.14484	.285
48.595	.302	.1381	.16517	9.21793	.78207	9.89325	-.10675	1.68659	-.18004	.48412	3.0487	.92281	9.07719	.11945	.264
60.816	.249	.0851	.10178	9.00766	.99234	9.99666	-.00334	1.78402	-.00596	.51209	3.2515	.98420	9.01580	.10371	.251
85.493	.232	.0681	.08145	8.91089	1.08911	10.03707	+.03707	1.93193	+.07162	.55454	3.5854	1.08526	8.91474	.08218	.233
127.438	.204	.0401	.04796	8.68088	1.31912	10.12028	+.12028	2.10530	+.25323	.60431	4.0208	1.21706	8.78294	.06067	.215
					10.54023		-1.99797		-1.85452						

TABLE IV.

Part IVa - shows the values of y-ȳ derived from New York Board Data. Unit = .001
y = excess pure premium ratio, losses unlimited.
ȳ = excess pure premium ratio, losses limited to $10,000 per case.

Part IVb - shows the values in IVa expressed as indexes of value in "00" column and then multiplied by 42. Unit = .001

	Aver. Prem. X	Selected Risk-Loss Ratio expressed in terms of Expected Loss Ratio																			
		.00	.15	.30	.45	.60	.75	.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	3.30	5.00
IVa	4.5	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	32
	5.5	20	24	20	20	20	20	19	20	20	19	15	20	20	20	19	19	20	20	20	9
	6.5	22	23	23	22	22	22	22	22	23	22	21	22	22	22	23	22	22	23	19	5
	7.5	36	36	36	36	35	36	36	36	36	36	36	36	36	36	36	36	35	35	34	12
	8.5	28	29	28	28	28	28	28	28	28	28	29	28	29	29	28	28	26	25	21	-
	9.5	11	11	10	11	10	11	11	9	11	11	11	10	11	11	10	10	9	9	6	-
	12.1	47	47	47	48	47	47	47	47	47	47	47	47	45	42	39	36	32	27	17	4
	17.1	57	57	57	56	57	57	57	56	55	54	52	57	54	40	37	32	29	25	13	1
	22.3	36	35	35	36	36	36	36	35	33	29	26	22	20	18	18	18	18	17	7	-
	27.3	29	29	29	29	28	29	29	28	24	21	17	14	12	10	6	5	4	3	-	-
	33.8	43	43	43	44	43	43	43	41	36	31	26	19	16	13	9	6	4	4	3	4
	45.0	57	57	57	57	58	57	57	54	48	44	36	30	26	18	12	9	4	4	-	-
	61.6	60	60	59	60	60	58	56	50	43	29	14	6	4	1	-	-	-	-	-	-
	85.7	46	45	46	46	45	40	32	24	19	9	5	4	-	-	-	-	-	-	-	-
	119.6	61	61	61	61	61	61	51	44	20	17	3	-	-	-	-	-	-	-	-	-
	204.1	20	20	21	20	21	20	20	7	-	-	-	-	-	-	-	-	-	-	-	-
	Aver.	42																			
IVb	4.5	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	32
	5.5	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	19
	6.5	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	36	10
	7.5	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	40	14
	8.5	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	37	32	-
	9.5	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	34	34	23	-
	12.1	42	42	42	42	42	42	42	42	42	42	42	42	40	38	35	32	26	22	12	1
	17.1	42	42	42	42	42	42	42	42	42	42	42	42	40	29	27	24	21	18	10	1
	22.3	42	42	42	42	42	42	42	41	39	34	30	26	23	21	21	21	21	20	8	-
	27.3	42	42	42	42	42	42	42	41	35	30	25	20	17	14	9	7	6	4	-	-
	33.8	42	42	42	42	42	42	42	40	35	30	25	19	16	13	9	6	4	4	3	4
	45.0	42	42	42	42	42	42	42	40	35	32	27	22	19	13	9	7	3	3	-	-
	61.6	42	42	42	42	42	41	39	35	30	20	10	4	3	1	-	-	-	-	-	-
	85.7	42	42	42	42	42	37	29	22	17	8	5	4	-	-	-	-	-	-	-	-
	119.6	42	42	42	42	42	42	35	30	14	12	2	-	-	-	-	-	-	-	-	-
	204.1	42	42	42	42	42	42	42	15	-	-	-	-	-	-	-	-	-	-	-	-

TABLE IV
(continued)

IVc - shows remainders when values in IVb are subtracted from 42. Unit = .001

IVd - shows the values in IVc after smoothing. This represents the additional loss in the excess portion when $10,000 per case limit is added to the per loss ratio limit. Unit = .001

	Aver. Prem. X	Selected Risk Loss Ratio expressed in terms of Expected Loss Ratio																			
		.00	.15	.30	.45	.60	.75	.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	3.30	5.00
IVc	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	5.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
	6.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	33
	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	28
	8.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	10	42
	9.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	19	42
	12.1	0	0	0	0	0	0	0	0	0	0	0	0	2	4	7	10	16	20	30	41
	17.1	0	0	0	0	0	0	0	0	0	0	0	0	2	13	15	18	21	23	32	41
	22.3	0	0	0	0	0	0	0	1	3	8	12	16	19	21	21	21	21	22	34	42
	27.3	0	0	0	0	0	0	0	1	7	12	17	22	25	28	33	35	36	38	42	42
	33.8	0	0	0	0	0	0	0	2	7	12	17	23	26	29	33	36	38	38	39	38
	45.0	0	0	0	0	0	0	0	2	7	10	15	20	23	29	33	35	39	39	42	42
	61.6	0	0	0	0	0	1	3	7	12	22	32	38	39	41	42	42	42	42	42	42
	85.7	0	0	0	0	0	5	13	20	25	34	37	38	42	42	42	42	42	42	42	42
	119.6	0	0	0	0	0	0	7	12	28	30	40	42	42	42	42	42	42	42	42	42
	204.1	0	0	0	0	0	0	0	27	42	42	42	42	42	42	42	42	42	42	42	42
IVd	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	5.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	20
	6.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	28
	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	15	35
	8.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	6	18	38
	9.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	8	16	22	40
	12.1	0	0	0	0	0	0	0	0	0	0	0	0	1	3	7	11	16	22	32	41
	17.1	0	0	0	0	0	0	0	0	0	1	2	3	4	9	18	25	28	33	40	42
	22.3	0	0	0	0	0	0	0	1	3	7	12	17	22	26	30	34	35	40	41	42
	27.3	0	0	0	0	0	0	1	2	6	10	17	22	26	30	34	38	40	41	42	42
	33.8	0	0	0	0	0	0	1	3	7	14	20	26	30	35	37	40	41	42	42	42
	45.0	0	0	0	0	0	0	1	3	8	16	24	30	35	38	40	41	42	42	42	42
	61.6	0	0	0	0	0	1	3	9	15	22	30	37	40	42	42	42	42	42	42	42
	85.7	0	0	0	0	0	2	8	15	22	30	35	40	42	42	42	42	42	42	42	42
	119.6	0	0	0	0	0	1	6	15	25	36	40	42	42	42	42	42	42	42	42	42
	204.1	0	0	0	0	0	0	2	18	30	40	42	42	42	42	42	42	42	42	42	42

ABSTRACT OF THE DISCUSSION OF PAPERS READ AT THE PREVIOUS MEETING

EMPLOYMENT AND UNEMPLOYMENT—
W. R. WILLIAMSON
VOLUME XXVII, PAGE 256

WRITTEN DISCUSSION

MR. CLARENCE A. KULP:

This paper of Mr. Williamson may very well be a landmark in the history of this Society. It is hazardous to prophesy—25 years ago social insurance to a distinguished President of this Society seemed just around the corner—but it would be an excellent thing both for the actuarial profession and the institution of social insurance if this paper were the first of a notable series.

The paper is centered essentially around two ideas: limitations on the application of actuarial methods to unemployment insurance and related social services; the need nevertheless to apply this method, primarily to secure more exact information about the operation of the federal-state system of unemployment insurance, principally of its costs and the capacity of the employed group to absorb these.

Illustrative of the first point is the discussion of the essential indefiniteness and relativity of the concept of unemployment itself, and of its *alter ego,* employability. The author contrasts the current German concept of employability, which results, often by means we in this country are still a long way from accepting, in a population 60 per cent gainfully employed. This might be called the authoritarian or planned economy concept of employability and employment: everyone is employable who has half a leg to stand on, and entirely without relation to his preferences or former living and work standards. This approach produces the highest practicable ratio of working to total population. Near the other extreme of the range Williamson places the United States under "normal" conditions, with less than 40 per cent of gainfully occupied to total persons. The concept of employability actually depends indeed not only on the country and political-social system but within a country on the state of the labor market, on the relative demand for and supply of various kinds of workers, on the level of the unemployment insurance fund and on a dozen other factors. It is inevitable that unemployment therefore lacks and will always lack the relative definiteness and objectivity of such events as loss of life, industrial accident and automobile liability loss. Statute and administrative regulation can do something to mitigate these lacks, but in the nature of the case these must also be arbitrary in the sense that a line must be drawn at some point but that could be drawn with equal logic at a half-dozen or a score of other points. The task of the actuary and the statistician is not helped of course by the multiplicity and variety of state laws and state administrative standards in this country. There is no plea in the Williamson paper for federalization of unemployment insurance or even for uniform coverage in state unemployment insurance laws, but one of these would seem essential in order to overcome the "diversity" of data inevitably produced by the current system.

The author characteristically does not tarry over the imperfections of the data nor ask us to wait for better statistics as a prerequisite to beginning actuarial work in the new field. The objective of the actuarial approach seems to be twofold. Primary is the task of "cost determination," the provision of quantitative materials on "the number of individuals covered . . . the amount of time worked for each employee . . . the income which determines tax receipts, the extent of unemployment with sufficient data to determine the facts of benefit receipt." So much is clearly the task of the actuary as against the statistician strictly regarded: the emphasis on cost, on the measurement of a hazard, on the equating of benefit and contribution. A second objective is to provide more exact and meaningful data on the state of the labor market: the number and quality of workers of various skills, experience and training available on the one hand and sought by employers on the other. The actuary is for example to supply information on "unused man power [in] the current defense emergency."

Now, from one point of view this second objective, although it is not squarely the job of the actuary, may be regarded, if he does not roam too far from costs, as a natural extension to or incident of the actuarial task. There are a number of indications that the author regards it quite as important as, and perhaps independent of that of cost-calculating itself. The case here for major emphasis on this second function is both explicit and implicit. Illustrative of the first is the need of the defense program we have cited; of the second, favorable reference to the program of "old age and survivors insurance [which] punctiliously shows for . . . individuals specific amounts of earnings . . . ;" and to early unemployment insurance laws "varying benefits in accordance with work history over many years," with the consequent product of "a considerable volume of case histories most helpful to long-range cost analysis." At the point suggested by these functions and objectives, it seems that the actuary leaves off and the labor market statistician takes up. The latter considers himself as definitely a professional as the actuary, with his own requirements for admission to his guild, his own concepts of appropriate subject matter, his own professional standards. I should be opposed to this proposed extension of the actuary's function indeed for a second reason. The author as we have seen strongly suggests that unemployment insurance benefits should be related more directly to the individual's work history and the benefit base extended over a longer period of time. Whatever one may think of the propriety of individualizing, and extending in depth as it were, the records of our labor personnel—carried in Germany to the Arbeitsbuch or labor passport for each worker, with a complete work, skill and wage record for a working lifetime—a parallel approach in unemployment insurance is quite a different matter. There is no standard formula of course. Here, as in every social insurance, each nation must achieve an operating compromise between the always more or less inconsistent and sometimes opposing objectives of a degree of individual equity on the one hand and of the requirements of broad social policy and administrative practicality on the other. But everywhere unemployment insurance in the nature of the hazard is more nearly pure mass insurance, with the corollaries of a minimum of accounting and actuarial refinements and of emphasis on individual equities, than any other. Comparatively, an old age and survivors insurance system is a simple bookkeeping operation. The time may come when we shall swing back to a longer case record and to greater emphasis on these equities, as Williamson suggests perhaps through the freezing of benefit rights during the emergency. We have of course not finally arrived at the best of all possible unemployment insurance contribution-benefit formulae. It is important that, whatever we do, we keep in mind the distinctive differences between a record adequate for unemployment insurance and one adequate for labor market analysis.

MR. GRADY H. HIPP:

It has been most encouraging to note that able actuaries have had the courage to submit papers to the several actuarial societies during recent years on various phases of social insurance problems which generally had not been included theretofore within the scope of actuarial investigation. It is most appropriate that a paper has been submitted by Mr. Williamson to the Casualty Actuarial Society, which society should be a leader in studies of all the forms of social insurance. His paper outlines actuarial and statistical approaches to the problems connected with the social insurances. It is tremendously worthwhile to have an able actuary with valuable training and experience outline the social problems connected with unemployment.

The brief references made by Mr. Williamson to the governmental agencies dealing with unemployment and unemployment insurance are very interesting. The nature and extent of the research and analytical work undertaken by governmental and private agencies are but little short of amazing to persons not associated with the work.

Workmen's Compensation, a branch of the social insurances with which the Casualty Actuarial Society has been chiefly concerned, has developed over a long period of years to a far greater extent than have other social insurances. It is quite likely that if the other social insurances had developed to anything like the extent of Workmen's Compensation, an appreciable percent of the benefits which have been paid as Workmen's Compensation would have been transferred to some of the other social insurances—in particular, unemployment and sickness insurance.

It seems reasonable to start from the premise that the whole community must accept the responsibility to provide at least a minimum standard of subsistence for all its members. As to the best means of attaining this end, we must expect a variety of views. Notwithstanding the marked extent to which various social insurances have already developed largely through the activities of governmental leaders at Washington, we cannot afford to accept blindly the present situation as our ultimate goal. It is to be hoped that actuarial analyses and studies will in due course make it possible to present facts which will indicate the forms of social insurance which are most worthwhile, the weakness and strength of each form of social insurance and which, if any, form might better be abandoned in favor of other forms of insurances or benefits. I believe there has been no hesitancy in the past and that there will be no hesitancy in the future in presenting facts which are disclosed by investigations and analyses.

It is possible that outright relief or public assistance will be found to have far better psychological and economic consequences than some of the forms of social insurance. Individual initiative, the will to work, and the satisfaction arising from a sense of independence must not be stifled. It may require many years of study, investigation and experimentation to answer definitely some of the simplest questions relating to the merits of the various forms of social insurance.

It is most important that workers be brought to a realization of the fundamental fact that the coffers of the states and the nation are not inexhaustible and that every dollar spent by the Government for social benefits or otherwise must be collected from individuals, corporations and employers generally who do not have an unlimited ability to pay taxes.

It appears that the direction of the social insurances is becoming more and more centralized in Washington. Mr. Williamson points out that the strategy of the tax offset has been effective in developing unemployment compensation programs in all the states. No state can afford to refuse to adopt and to continue an unemployment compensation program. This is considered by many to be an encroachment upon states' rights. This view deserves careful analysis and consideration.

As Mr. Williamson points out, it sometimes seems that relief administration has recently become one of the nation's major industries. It seems to me that far too little attention has thus far been given to the tremendous overhead expenses which are necessarily involved in the administration of various social insurances. Any unnecessary overhead expense is pure waste. Should not greater emphasis be placed on this phase of the problem? Perhaps there is some less expensive angle of approach to the problem of unemployment which might attain substantially as good or better results. I think it is pertinent to inquire whether the need for relief and for unemployment and other social insurances could be greatly reduced, if not eliminated, in some instances. Fundamentally the most effective way to deal with unemployment is to prevent it. It may be feasible to find a practical means of at least reducing unemployment substantially by marshalling the intellect, the capital, the employers and the resources of the nation in such a way as to accomplish in large measure the desired objective.

First, make it possible for employers to give employment to laborers under decent working conditions. If then deficiencies appear, it will be time for the states or the nation to cover the indicated needs through relief or programs of social insurance.

I think it is reasonable to assume that employers in general dislike unemployment almost as much as do the workers. It would, therefore, seem that at least as much emphasis should be placed on solving the problems of the unemployment of capital or the unemployment of employers as is being placed currently upon unemployment and other social insurance benefits. An actuarial approach to the economic problems should be most welcome.

There is a dearth of material in the proceedings of actuarial societies on the unemployment of capital. Would it not be most desirable to stimulate actuarial consideration of the problems involved in the employment of capital, particularly insofar as such problems relate to employment and unemployment of workers? Actuaries must become more accustomed to working with basic data which are far less exact than the data with which they have generally worked in the past.

Carefully planned census studies of industry, industrial capacity and economic needs of the nation should be helpful in any endeavor to solve the problems of the unemployment of capital as well as the unemployment of labor.

There are ample governmental public and private agencies, if they can be properly coordinated and directed, to classify and analyze industrial plants, industrial processes, machines and tools, resources of raw materials, skilled workers, common laborers, technicians, research workers, and last, but not least, the employers themselves.

The planning of the necessary analyses and studies of the nation's capacity to produce commodities, raw materials and food would require ability of the highest order, but I have no doubts that men with such ability are available.

If adequate analyses are made available, is it not reasonable to hope that industry, agriculture, public works, etc., can be geared to such a level or varying levels as to reduce unemployment to a minimum and greatly lighten the load on relief agencies?

If the states can be brought into line as they have been on unemployment and other social insurance programs, is it not reasonable to assume that industry, agriculture, capital and labor can be brought into line by somewhat similar means of tax offsets or otherwise to conform more closely to a broad pattern of production and operation which is best for the social welfare of the nation? Some control or direction of production in a particular line or lines of industry may be helpful. Overproduction of either necessities or luxuries may be as harmful at times as underproduction at other times.

If facts can be brought to light through analyses of the varying needs of the nation, it may be within the realm of possibility that a feasible means can be found to direct and control in a broad way the numbers of specialists, scientists and workers trained for particular professions and vocations. Possibly the development and growth of factories, farms and mines can be controlled and directed within certain broad limits in such a way as to avoid acute crises. Dying industries might be revived or diverted into other channels of productivity. Financial assistance might be given to employers or industries under certain circumstances.

Perhaps it is no mere Utopian dream to picture a stabilization fund for industry, agriculture, mining and governmental undertakings which could be more easily, simply and less expensively operated than a stabilization or unemployment insurance fund for workers. A stabilization fund for industry could be used to aid employers when their particular industry or class of business is in a depression even though the remaining industries might be prosperous. Such a fund might be made the means of aiding in the liquidation of dying industries or in making it possible for them to change over to other lines of production. Call it subsidy, if you will, but there is just as much reason for subsidizing industry in order to promote employment as there is for subsidizing labor to relieve unemployment.

A stabilization fund for industry might become the means of leveling down the peaks of prosperity and leveling up the valleys of depression. The results of research work might be made more readily available to industry for the purpose of stimulating the production of new or better products. In the long run, anything that may be done to promote the proper employment of capital would be highly beneficial to industry, to workers, and to the country generally.

Public works should be so planned and timed that they would be of aid in picking up slack in employment during periods of depression.

The movement to key changes in wages and salaries to changes in the cost of living will probably have far reaching consequences in the future. An increase in wages for W.P.A. workers was recently announced for the purpose of offsetting the rise in the cost of living. Many employers have made changes recently in wage scales and salary scales based upon changes in cost of living.

Actuarial analyses of this and of other problems of employers should prove to be of equally great value to workers as actuarial analyses of unemployment problems. The broadening of the scope of work of actuaries should be welcomed. Through making sound analyses of the problems of employers and by clear presentation of the facts, actuaries may even become pioneers in social and economic developments.

Successes in wars apparently have become more and more dependent upon statistical and actuarial analyses. Mr. Williamson points out that the major reason for the current analysis may be the defense emergency and the need for a maximum use of available man power. We must agree with him as to the desirability of knowing more about the reserves of labor and of applying actuarial analysis.

In October, 1941, the daily newspapers gave a prominent place to a statement of the British Minister of Labor regarding the need of accurate statistics in effecting changes in Great Britain's mobilization of man power.

Is it not of at least equal importance to know more about the reserves of capital and of employers and to apply actuarial analysis? We must have not only mobilization of man power but mobilization of employers, machines, equipment and capital necessary for the production of materials for both war and peace.

In regard to the transition from the emergency to peacetime activities, I believe that actuaries generally will fully agree with Mr. Williamson as to the need of maintaining a thoroughgoing control record system as to the occupations which can be handled by transfer from the then less important defense industries. I think it is equally important to have a record system as to the machinery, materials, manufacturing processes, employers and capital which can be transferred to proper channels of peacetime production.

MR. ROBERT J. MYERS:

Mr. Williamson has devoted his paper to that important topic which fortunately, or unfortunately, all of must be deeply concerned with if we intend to live, eat, and dress in our accustomed style. Formerly, employment and the lack thereof were matters of purely individual concern. In fact, in the very earliest days of history, when society was so individualized, there was no such thing as lack of employment but rather lack of sufficient time to devote to working and producing. Industrialization has, along with its many benefits brought the type of lack of coordination which we term unemployment. Governments have gradually attempted to solve this problem, but frequently it appears that the problem has only become worse. Since economic matters can not be analyzed in test tubes as is done by the physical scientist in his research, it is impossible to determine whether government intervention has actually made matters worse, or whether it has helped to prevent them from becoming even worse than they might otherwise have been. In the next few years, the defense program may pretty well eliminate the immediate problems of unemployment, but there is the specter of the future to be coped with. At any rate, Mr. Williamson has given a very adequate description of the several governmental agencies dealing with the problem of employment and unemployment.

Of particular interest are the charts which Mr. Williamson presents in the latter half of his paper. Too frequently economic discussions of "work" are strictly qualitative in nature, but Mr. Williamson has introduced a quantitative outlook by building up plausible statistics where actual ones are not available. The research economist is highly desirous of obtaining actual data on the various categories of employment and unemployment sketched out by Mr. Williamson, but from practical view-points, it may be too expensive a matter to collect and tabulate so many classifications. As a pioneering venture plausible estimates are the best procedure. An even more interesting display could be made by a three-dimensional chart projecting the several populations according to work status in different calendar years.

Chart II is a schematic representation of the covered labor force ranked according to "efficiency" in maintaining covered employment in an "average" year. It may be considered as indicating the average employment status of 100 different equal groups arranged according to the amount of covered employment. Thus, the "aristocracy" of covered employees, the upper 10 groups, are employed full time in covered jobs. The next lower 10 groups lose possibly only a day or so of employment. In fact, even the 45th group from the top has employment in all but two weeks of the year. From this point on, there is a rapid drop until for the "have nots" the amount of covered employment is quite small. For instance, the 10th group from the bottom has only about eight weeks of covered employment on the average, and more than 50% as much unemployment; of course, a large number of individuals in this group have non-covered paid work.

In considering unemployment compensation, Chart II is perhaps the most interesting one, since the areas of potentially compensable unemployment may be compared to the period of covered employment. As may be seen, Area D is quite small as compared with Area A. By crude calculations, I have determined that the ratio of D to A is about .032 which indicates that the cost of unemployment compensation benefits averaging half-pay is about 1½% of pay-roll or well below the usual net contribution rate of 2.7%. Of course, it should be recognized that this chart is crudely based on the experience of 1940, a year of relatively good employment and a year of even better unemployment compensation experience, since employment is rising and taking up the slack of recently unemployed workers.

Further indications as to unemployment compensation costs may be obtained from Chart II; Area C, representing the waiting period, is practically negligible in size. This seems to indicate that the waiting period could be shortened even further without too great an increase in cost; however, by so doing, we might change the shape of all of the curves somewhat, because there would be less incentive to get a job as quickly as possible. Area E, which relates to the period following exhaustion of benefit rights, is, on the other hand, rather large, being almost the size of Area D. This indicates that payment of benefits during the entire period of unemployment without any duration limit whatsoever would, roughly, double costs under unemployment compensation. Here again, such a change in the unemployment compensation program might drastically affect the shape of the curves, so that Area D might become several times as large as it is shown. Likewise, Area G, representing unemployment of those who had too little covered employment to meet the eligibility conditions for benefits receipts is rather large as compared to Area D, roughly 4 times as great. This indicates the huge financial burden present if all unemployment were to be compensated through this program. The present system has considerable of the individual equity element present as compared to a "Townsend Plan" type which would pay benefits to all unemployed as a right rather than through relief channels.

In view of the heightened defense efforts since Mr. Williamson prepared his paper, it would be interesting to have him make further comments on employment and unemployment conditions in the immedate future and especially after the cessation of the war.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. W. R. WILLIAMSON*:

All three discussions, by Mr. Myers, Mr. Hipp, and Mr. Kulp, are helpful contributions on the subject of employment and unemployment.

Mr. Myers's use of numerical relationships drawn from the charts gives a definiteness and directness which the charts themselves lack. He suggests the possibility that our cures "may tend to increase the disease." He asks about the post-war emergency.

Mr. Hipp's comments included discussions of (a) the possibility of a jurisdictional dispute between the social insurances, (b) the importance of a flexible concept of social insurance, (c) the possible danger in benefit programs to individual initiative, the will to work, and an adequate sense of independence, (d) the limitations of too great centralization, (e) the importance of overhead expenses, (f) the necessity for an attitude of prevention or conservation.

His conclusion as to the relative importance of work and relief, as to the fact-finding techniques, as to the training of enough professional men, as to the importance of the employer, are all extremely pertinent.

Mr. Kulp's vivid discussion includes two points on which he essentially invites my comments, (a) the doubt as to the correctness of the actuary's excursion into the field of the labor market statistician, (b) the doubt as to the wisdom of more individual benefit variation in order to reflect past work histories.

With the first I have no quarrel. There is a hopeful suggestion in the sampling methods now used by the W.P.A. in the direct inquiries of the Bureau of the Census that measures are afoot to discover for us more information about employment. When no fact-finding function has been adequately developed in any existing agency, the actuary has had to make up for the omission, and is not excused from developing statistical displays merely because such development would bring him into criticism. Moreover, he may not merely accept the illustrations prepared by other groups without a full study of the significance of such data.

* The opinions as expressed in this article are those of the author, and do not represent the views of the Social Security Board.

I probably am less enthusiastic than Mr. Kulp about an increasing individual equity in unemployment insurance. I do feel that the size of the family should be recognized in benefit determination. I suppose it inescapable that some variation in benefit has to occur because of the wide range in living standards in different portions of the country, particularly the differences between urban and rural costs of living.

The Canadian venture into unemployment insurance has emphasized individual equity to so pronounced a degree that, I feel that they too should reduce the accent on this function and increase their recognition of presumptive need because of size of family. They happen to have a rather nominal recognition of dependents, quite inadequate to differentiate between the bachelor and the man with a large family. It appears that the legislation was completely ignorant of my Casualty Actuarial Society paper on social budgeting and its thesis that social insurance does not function in terms of banking. I am as little impressed by the effort at securing pronounced individual equity in unemployment insurance as I would be to find the payments under fire or casualty insurance reflecting the past duration of my premium payment history. Instead, I favor the utmost of simplicity and directness, together with such benefit levels as will encourage return to employment.

Mr. Myers's inquiry about the post-war emergency leads to a statement that I should like to count upon our continuing our new-found work habits beyond the duration of the defense requirements. It seems certain that, under some form of assistance, we shall pay benefits to the unemployed, and that, so far as our combined relief, assistance, and insurance benefits structure developed, there is no question about escaping the cost of this burden. Therefore, it seems much more constructive, even as Mr. Hipp suggests, to keep the potential unemployed at work, by transferring them from the slowing-down defense industry over to the normal lines of production. We citizens who are paying all the bills recognize that the major reason for our tremendous increase in national debt is the maintenance of millions of citizens and their families in idleness. Not in this fashion will we secure for ourselves adequate, sound, up-to-date housing, well-built, modern roads, complete flood control, and the other recognized needs of the people.

I am inclined to doubt the need of additional agencies for the payment of benefits, sponsored by an unwise belief in a post-war depression greater than our pre-war depression. I trust that our insurance knowledge as to the danger of too ready a payment to claimants may help to avoid a type of benefits so apt to demoralize our citizens.

The W.P.A. has recently been releasing a new type of report on employment and unemployment. The last to come to my attention is Special Memorandum No. 6, dated October 27, 1941, on "Worker Resources of Households," and a discussion released in October 1941 on "Sampling Procedures and Method of Operation in the W.P.A. Monthly Report of Unemployment."

In the paper I referred to questions asked by the Bureau of the Census in reference to employment and unemployment. Preliminary reports based upon the 5% sample have now been released by the Census. We are making preliminary charts to show the relationship of employment, unemployment, and the various reasons why people remain outside of the labor market.

From these two Governmental organizations there will develop considerable conflict in the apparent extent of unemployment, a conflict which I believe to be the beginning of a more thorough understanding as to the facts in this important area.

CONCERNING THE RELATION BETWEEN THE COST OF TRAFFIC ACCIDENTS IN A PARTICULAR COMMUNITY AND THE CONDITIONS THEREIN—

ALBERT W. WHITNEY

VOLUME XXVII, PAGE 285

WRITTEN DISCUSSION

MR. D. J. LYONS:

Mr. Whitney's paper deals with a subject which he is most competent to discuss. Previous papers presented by him, not only to this Society but to the Actuarial Society of America, as well, indicate that he has given much careful thought to the rating of risks for the various kinds of insurance. This particular paper reminded me of one presented by Mr. Arthur Hunter to the Actuarial Society of America in 1911, outlining a numerical rating system for applicants for life insurance. The theory of the plan outlined in Mr. Hunter's paper was much the same as that underlying Mr. Whitney's proposal. However, in the case of Mr. Hunter's paper, factors were available to test the proposal. Tests were made by some of those discussing the paper and in one extreme case it was found that an individual rated according to the plan could expect to live four percent longer than eternity. Mr. Whitney has proposed a rating plan for automobile insurance and has developed the underlying mathematics. No attempt is made in the paper to derive the various factors or to give practical illustrations of the plan. In this respect, Mr. Whitney's paper is much less vulnerable in the matter of discussion than was Mr. Hunter's. It may be pointed out in passing that despite all the objections raised the numerical rating system has been generally adopted and is firmly established in life insurance underwriting at the present time.

Mr. Whitney has developed the formula $\pi = TPSV$ where "T" is the length of time a car is in use per car year; "P" equals the density of probability of an accident; "S" equals the average severity of accidents in a given territory; and "V" is the index of claim costs —. It is interesting to note that Mr. Whitney's density of probability "P" is a function very similar to μ which is known as the instantaneous force of mortality in life insurance. As far as I have been able to find, the mathematics in this paper, as in all of Mr. Whitney's papers, is sound. It may be pointed out, however, that the partial derivatives in Taylor's theorem appear on page 292 as total derivatives. This is probably the result of a typographical error.

Mr. Whitney has referred to the increased cost involved in schedule rating but has indicated that preventive activities have, in the past, more than paid for themselves. If the additional cost is accompanied by fewer accidents the money will be well spent. In many lines of insurance a portion of the premium, sometimes substantial, is used for the prevention of losses. There is no reason why this should not be the case with automobile insurance. The lack of accuracy of the plan would be, as Mr. Whitney has indicated, a disadvantage at first, but with the passage of time and the accumulation of adequate statistics, this condition would remedy itself just as it has in the case of the numerical rating system in life insurance underwriting.

I do not feel qualified to discuss the many practical objections to Mr. Whitney's proposal. It is recognized that there are many problems to be met in determining the proper factors for use with such a plan. A great many communities would not have sufficient exposure. Variations between communities in pure premiums for automobile insurance are undoubtedly due in large measure to different factors within each community. It has, however, been urged by some that with the ever-increasing travel radius of each car, consideration should be given to the fact that many of the accidents in a given community are caused not by the residents of that community, but by those who come from a distance. This view overlooks the fact that the natives may be largely responsible for the community's physical characteristics and to some extent, at least, for the attitude of the local courts.

As Mr. Whitney has stated, the determination of "*P*", "*S*", and "*V*" is the largest part of the job of developing the plan. The difficulties become apparent if we attempt to list the various factors which must be considered. Among these factors are the road conditions, the traffic regulations, the population and driving density of the community, the character of the drivers, the character of the general population and the attitude of the courts. It is likely that Mr. Whitney's plan would require a careful investigation of each of these factors in order that each might be valued. The complexity of the problem is immediately apparent and the difficulties in the way of a solution are great. From the public viewpoint, it does seem logical that if the safety standards of a community were a factor in the determination of automobile insurance rates, there would be a great incentive in each community to obtain the very best and most effective safety standards. Notwithstanding the practical objections, I suggest that we cannot dismiss lightly the implications of Mr. Whitney's suggestion from the point of view of improving safety conditions with a resulting reduction in the number of automobile accidents.

In Massachusetts, under the compulsory automobile insurance law, the insurance commissioner has wide authority in the matter of rates charged in that state for automobile insurance. In New

Jersey, as well as in many other states, no responsibility rests with the insurance commissioner in connection with automobile rates or policy forms. Companies are in large measure free to go their own way in transacting the automobile insurance business. This is true although these same states require the insurance commissioner to exercise great control over other lines of insurance such as workmen's compensation, fire, life, and accident and health, both in the matter of rates and policy forms. The various states, through the motor vehicle and highway departments, are interesting themselves more and more in safety activities. It may well be that in the future, some states will determine to exercise control over automobile insurance not only with a view of providing indemnity for the injured party, but also to furnish an incentive for a reduction in the number of automobile accidents. A plan such as that suggested by Mr. Whitney would undoubtedly appeal to the governing bodies of the states as likely to accomplish this purpose. The Motor Vehicle Commissioner of New Jersey, in correspondence with the writer, recently expressed himself as being very much in favor of some such plan from the standpoint of safety. The safe driver and private passenger classification plans furnish an incentive for more careful driving. Mr. Whitney's suggestion is toward the same end. It is well that our attention is directed along these channels and Mr. Whitney is deserving of our thanks for his efforts as evidenced by the splendid paper which he has presented.

MR. J. A. MILLS:

Mr. Whitney is to be congratulated on having presented a paper which should stimulate the thinking of those of us who too complacently assume that the existing experience basis is the one and only method of rate making. He has made a very interesting comparison between a "cause" or schedule rate basis of making automobile rates and the existing experience basis. He has been careful to mention not only the advantages, but also the disadvantages of the combination cause and experience rating method that he advocates. The paper is therefore of special interest and value to the new student of rate making who may have questions in his mind regarding the merits of the methods currently employed in making automobile rates.

Although the advantages of the experience method over the method that is advocated are few in number, they are so potent from a practical standpoint that a citation of the disadvantages does not detract materially from their potency. The cause method by itself is admittedly more expensive to use than the experience method. It therefore follows that the use of a combination of the two would more than double the present cost of promulgating automobile rates.

Mr. Whitney points out that the cause basis of making rates has been used in fire insurance. However, the values placed on the causes underlying fire losses have been determined on a judgment rather than a statistical basis. Rate adjustments in the fire field have been predominantly downward, and competitive conditions appear to have played their full part in the timing of these adjustments. It is a definite possibility that competition might play an even greater role than at present in the making of automobile rates if they were determined on a cause basis.

Unfortunately for the rate maker, the accuracy of the valuation placed on each of the causes contributing to accidents must be proven to the satisfaction of insurance buyers, and therefore, insurance commissioners. If one may judge from past experience, very little difficulty would be encountered in adjusting rates downward when the indications pointed to lower rates, but it might prove to be a disheartening and, perhaps, an impossible task to convince a community when its rates should be increased.

Adopting the cause method of making rates might shorten, but it could not be expected to eliminate the lag between the experience period underlying the rate and the policy period to which the rate is applied. It would be a formidable and time consuming task to keep abreast of the many changes that influence loss costs, but in some cases this might not prove as time consuming as the process of securing agreement on them amongst insurance carriers, insurance buyers, and insurance commissioners. Agreement and approval are not always immediately forthcoming even when rates are based on an established formula that has been applied to reasonably accurate exposure and loss data. Under the cause basis of developing rates we necessarily would be dealing with the same companies, the same insurance buyers, and the same insurance commissioners. This suggests that a new set of causes might sometimes obtain by the time the valuation of the previous set was approved. To illustrate, gasoline rationing could produce an important effect on pleasure and commercial car accidents, but for some time past we have not been in a position to tell what changes might be made in the controls placed on gasoline consumption from one week to the next. Under the circumstances who would like to undertake the job of evaluating the influence of rationing on motor vehicle loss costs during the next twelve months.

The lag between the experience period underlying the rate and the policy period to which it is applied might be shortened somewhat further if adjustments were made on policies in force whenever one cause or another indicated that insurance rates should go up or down. Unfortunately, it is expensive to handle rate changes. Most automobile policies are issued for an annual premium of less than $50, and the added cost of making frequent changes would necessitate an upward adjustment in the expense loading as would also the added cost of a more expensive method for making rates.

In actually applying the formula developed, the crux of the problem, as Mr. Whitney has stated, will be the process of evaluating the factors *P*, *S*, and *V*. Not the least of the difficulties will be the allowance which must be made for the constant movement of vehicles from an area of high accident frequency to one of low accident frequency. Not only are cars used on vacation and business trips which take them far afield, but there are quite a few locations over the country where cities with widely differing accident frequency rates are either very close together or actually touching. In addition, it is a characteristic of the modern day auto that a great deal of its normal driving mileage is built up in areas with entirely different driving conditions from those of its place of principal garaging. A study of highway usage in seventeen states made by the United States Bureau of Public roads indicates that an average urban owned vehicle travels about 59% of its annual mileage on rural highways and only 41% on urban streets. The proportion of rural travel naturally is higher in small than in large cities, but even in the case of cars registered from cities of over 100,000 population, rural travel was found to make up 40% of the annual mileage.

It would be interesting to have Mr. Whitney pursue his study further by developing approximate values for his "*P*", "*S*" and "*V*" factors. We believe, however, that their acceptance generally would vary directly with the extent to which they were the product of statistical data rather than pure judgment and that great difficulty would be encountered in making proper allowance for the fact that the causes which give rise to accidents in the place of principal garaging are not necessarily indicative of the total insurance cost.

MR. H. T. BARBER:

Professor Whitney has again made a notable contribution to casualty actuarial science in the form of this paper. The novelty of the subject matter and the author's ability to treat it in a clear, logical, and not too complicated manner has resulted in an excellent paper of general interest, one which merits careful study and consideration by automobile rate makers as it contains many comments adaptable to current automobile rating problems. It gives the reader a fresh insight into this perplexing question and uncovers a wide field for future statistical exploration.

A written discussion of a paper of this character can follow one of several courses. One might agree with the author completely and proceed to develop further his suggestions, or the discussion might assume a critical attitude and endeavor to point out any suspected weaknesses in the presentation. The present writer elects to pursue a third course of less definite character, namely, to record his observations from a review of the paper even though these comments may appear to be disjointed and possibly insignificant in importance in some instances.

It is claimed that the schedule rating method of making automobile rates provides a more effective measure of the hazard since an adjustment in rate can be put into effect immediately. However, before a rate adjustment can be made, it is necessary to obtain knowledge of the fact that conditions have changed. It may be assumed that improvement in conditions will frequently be brought to the attention of the rate making authorities by outside sources, but provision should be made for periodic reviews which will test the propriety of all of the elements composing the rate. Presumably, such a review would be based upon a statistical foundation. Likewise, it must be assumed that many of the elements entering into the rate will rest on a statistical foundation. The writer is inclined to believe that the same difficulties with respect to time lag which are attributed to the present method, would crop out under the suggested method in these necessary statistical studies. In fact, the difficulty might be accentuated because of the multitude of causes which will each be reflected in the rate. Presumably this will increase the number of sub-divisions of statistics and require a longer experience period to establish dependable experience indications for each. On the other hand, if the elements of the rate are based on judgment, it may be pertinent to inquire why the same judgment adjustments cannot be imposed upon rates based on experience treated in the customary manner.

A second advantage claimed for the schedule rating method is that it has a greater preventive effect. With the knowledge that the rates are based on causes it is expected that the public will take a greater interest in removing these causes in anticipation of an immediate reward in the form of rate reductions. In estimating the value of this advantage it must be remembered that the vast majority of automobile premiums are obtained from single car private passenger risks paying an annual bodily injury and property damage premium of possibly $40 on the average. Any potential reduction in a premium of this size is not enough of an incentive to interest the individual car owner in accident prevention from a dollars and cents point of view. Of course, an occasional politician may point to the aggregate savings in premium obtained by the removal of certain causes at his insistence, but this interest of the politician may prove to be a boomerang in that the rates produced by the prospective method would be more vulnerable to political pressure than rates based on past experience.

The admission that rates determined by schedule rating would be "far less accurate" and "far more expensive" than those based on experience calls attention to two major obstacles to the acceptance of the prospective method by insurance carriers and supervising authorities as an alternative to present practice. To anyone who is familiar with the situation, it is obvious that these characteristics are directly contrary to the universal demand for more exact rates and for keeping expenses at a minimum. Coupled with the author's contention that the new method should be regarded as an absolute alternative to the present and that it cannot be considered as supplementary, they seem to make the case for the prospective method dark and hopeless. However, the writer feels that this last contention can be successfully challenged and that there is considerable potential advantage in a combination of the two systems. Why can we not take a system of manual rates which appears to be functioning reasonably well today and refine these base rates in accordance with the method described in the last few paragraphs of the paper? Such adjustments might be based on data independently compiled from those used in establishing base rates but, if this information is reasonably accurate, the resulting rates should represent a distinct improvement, to the advantage of both assured and carrier. A procedure of this kind and possibly some information of value in underwriting individual drivers seem to offer the most promise of immediate benefit from an analysis of data along the lines suggested by the author.

The formula $= TPC = TPSV$ which is rigorously developed and analyzed in the paper also has a common sense appeal. Pure premium equals exposure times probability times cost, the last representing a combination of accident severity and a reflection of local claim conditions. As the author points out, the evaluation of each of these terms is a task of no small proportions. It may be of interest to speculate on this phase of his analysis.

One source of information which could undoubtedly be utilized in the proposed study is the standard report of motor vehicle accidents used in notifying insurance carriers and state motor vehicle authorities of the occurrence of an accident. The writer has taken the items of information which appear on these reports and has grouped them according to their significance and bearing on the elements of the author's suggested rating formula. As might be expected, there is nothing revealed in this report form which relates to the evaluation of "V" and of "T" except possibly the question as to the purpose for which the vehicle was being used at time of accident. This latter item might give a slight clue as to exposure but, in general, "*T*" as well as "*V*" must be determined from a different source of information. There is some briefly outlined information in the report which relates to the value of "*S*", the index of accident severity. The form calls for a list of persons injured, nature and extent of injuries and medical aid rendered, also, a brief report on property damaged. Presumably, more detailed information as to accident severity is left for the claim investigator to develop.

The report form does constitute perhaps the best available source of information as to the value of "*P*" and its component parts as listed by the author. A rough grouping of items according to their relation to causes is set forth below.

(a) Causes pertaining to the State.
   1. State of residence of the car owner.

(b) Causes pertaining to the community.
   1. Town or City in which accident occurred.
   2. Road location of accident, such as street intersection, rural intersection, between intersections, highway, curve, hill, railroad crossing, bridge, etc.
   3. Condition of road, such as pavement, street lights, traffic control, driving aids.
   4. Accident resulted from collision with pedestrian, automobile, railroad train, fixed object.
   5. Action of pedestrian, such as crossing at intersection diagonally, with or against signal, children playing in street, coming from behind parked car, walking on highway.

(c) Causes pertaining to the individual.
   1. Age of driver.
   2. Sex of driver.
   3. Speed of car.
   4. Action of driver, such as exceeding speed limit, violating right of way, wrong side of street, failure to signal, reckless driving.
   5. Operating experience of the driver in months or years.

(d) Causes related to the car.
   1. Make of car, model and year manufactured.
   2. Condition of car, such as defective brakes, defective lights, defective steering mechanism, no chains, puncture or blowout.

(e) All other causes.

1. Weather—(clear, fog, rain, snow).
2. Condition of road—(dry, wet, snowy, icy).
3. The hour of the accident.
4. The day of the week of the accident.
5. The direction of the car, such as going straight, turning right or left, parked car, skidding, slowing down, backing up.

In addition to these, there will doubtless be many other items of information not called for specifically by the report form which will be revealed in the description of accident.

A statistical compilation of a large number of completely filled out reports might indicate the frequency with which each item is connected with accidents. Presumably, a norm for each could be established and the departure of each territory from the norm measured. Then the next question would be what relative weight to assign to each condition. To determine this statistically, it would be necessary for someone to analyze each report and list all of the contributing factors with a judgment assignment of the relative importance of each. It is conceded that the accuracy of this judgment might very well by questioned in individual cases but the aggregate results should be of value in determining the relative importance of each item. The suggested procedure is not greatly different from the studies which established the original values of the 1923 Industrial Compensation Rating Schedule.

Such an analysis of a volume of data sufficiently large to be indicative represents a task of large proportions and yet it would cover only part of the study called for by the author's recommendations. Undoubtedly, special studies would have to be conducted of claim files and court records to determine the approximate value of "*S*" and "*V*". Inspection reports of the facilities of each community as respects police, highways and traffic control would be required and probably some new record of individual car use giving data on mileage, average speed and gasoline consumption would be necessary to complete the study.

It may be expected that the natural inertia of undertaking a statistical analysis of the magnitude and type required by the proposed method of establishing automobile rates will operate to prevent a serious comprehensive effort along the lines indicated by this paper unless the present rate making method for some unforeseen reason should fail and necessitate a fresh attack on the rate making problem. As indicated previously, the writer feels that a partial survey on a prospective basis might yield returns commensurate with the expense involved, in the form of adjustments which might be applied to existing rates and in uncovering information of value in the selective underwriting of individual car risks. Experimentation on a moderate scale might lead to more extensive study as the comparative advantages of the suggested method become more widely appreciated.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. ALBERT W. WHITNEY:

I am taking advantage of this occasion when you have been engaged in examining my actuarial offspring to say how much interested I am, after many years of absence from your meetings, to find how well you have found yourselves. You certainly seem to be more intelligent than we used to be and I am glad to see that you are more frivolous. We were oppressed by the fact that we were not entirely sure that there was or ought to be any such thing as a casualty actuary and so we had to seem as important and serious-minded as possible.

I am glad to have a chance to reply to the interesting discussions by Messrs. Mills, Barber and Lyons, because they have raised points, some of which I had meant to cover in my paper and forgot to do so. Mr. Mills asks, for instance, a particularly important question—whether the mobility of the automobile, which shows its effect in the fact that a considerable proportion of accidents happen away from home, can be taken account of. The difference between the schedule-rating of a fire risk which stays put and the schedule-rating of automobiles which do not stay put occurs to one. But the two things are not congruent, even aside from the question of mobility, for the fire risk is rated on its own conditions while the rating in the automobile field is on the average condition for all cars. It is not very difficult to find the time on the average that cars are operated in the given community as compared with the time that they are operated out of the community. If in a particular case cars are operated 75% in the community, then evidently they should be schedule-rated on the basis of conditions in the community for only 75% of their exposure. It is a question, I confess, to know what to do with the remaining 25%. If all the cars betook themselves to some one other community, we could give them a rate made up 75% of the rate for their own community and 25% for the other community. Since, however, they rove in general over a much larger territory, the rate for the outside exposure would probably have to be based on some form of countrywide experience. I do not think the difficulty would be by any means insuperable, although this condition would naturally reduce the effectiveness of such a schedule-rating from a preventive point of view. Since prevention is far and away the most important reason for schedule-rating, it would be necessary to acknowledge that the effectiveness of the system would be reduced to just that extent.

Mr. Barber refers to my statement that the two systems are alternative and not supplementary. That statement was made on a basis of pure theory. They are two separate and distinct methods of rating, one in terms of consequences and the other in terms of causes. However, you cannot tell what you may have to do in actual practice. The problem of getting numerical values for the effect of the different causes will be so difficult that I can quite believe that in actual practice it may be necessary to make use of a mongrel solution. We can be very sure for one thing that it would be quite necessary to depend on the experience of the community in order to determine the general level of rates. The most that we could expect to do would be to apply schedule-rating to the question of the relativity among the different elements of the hazard.

It must be observed that schedule-rating has no place as a rating system unless there is a preponderant interest in prevention. That is exactly the situation in fire insurance. Fire insurance rating has always been viewed from the preventive side. Casualty insurance is a lineal descendant of life insurance and life insurance has had little concern with prevention: that has been left to the doctors and to other agencies. Life insurance has been considered almost solely from the point of view of social and economic security. Casualty companies, confronted with the workmen's compensation situation where prevention was evidently extremely important, did embark on schedule-rating and it produced exceedingly important results. I have no doubt that schedule-rating of communities is feasible for automobile insurance and that it could be used approximately as successfully as in the workmen's compensation field, but it certainly cannot come and should not come unless and until the time arrives when there is sufficient interest in traffic accident prevention to make it worthwhile. That may happen, however, for we cannot go on indefinitely killing 40,000 people a year, injuring one million more and incurring a direct loss of two billion dollars a year. It seems inevitable that sometime we shall wake up to the seriousness of this situation and do something about it and if and when that time comes, I presume that the schedule-rating of communities will appear to be worthwhile.

I am pleased that my mathematics seem to have passed the evidently careful scrutiny of Mr. Lyons. His suggestion that *P*, the density of probability of an accident, is the same kind of thing as μ, the force of mortality in life insurance, is unquestionably correct. μ measures the instantaneous tendency to die: *P* measures the instantaneous tendency to have an accident. I am glad that *P* finds itself in such good company. As to notation I will say that I wrote the formula on page 292 in terms of partial derivatives but the printer did not seem to be prepared to cooperate in expressing any such invidious distinctions and rather than get into an argument, I preferred to remember that a very creditable English book where I learned my calculus seemed to get along all right with only one set of symbols.

CASUALTY INSURANCE ACCOUNTING AND THE ANNUAL STATEMENT BLANK—

THOMAS F. TARBELL

VOLUME XXVII, PAGE 294

WRITTEN DISCUSSION

MR. NORTON E. MASTERSON:

A mid-western lawyer was discussing the relative merits of two eastern law schools. He criticized one because in his opinion its professors taught the law as they thought it should be—and not the law as "she is." Fortunately, for students of the Society, Mr. Tarbell has followed his previous paper with another along the same pattern. He stresses casualty insurance accounting as "she is" and does not confuse the student who desires factual information only. It would be difficult, I am sure, for many of us to keep from being side-tracked to become critics and reformers of the status quo.

There is little room for criticism of Mr. Tarbell's factual presentation. It is a revision of a good paper which has stood the test of time. For twelve years the original paper has helped students studying for our examinations. Like its predecessor, this paper was prepared primarily for students of our Society.

Insurance accounting presents several significant departures from commercial accounting practices and Mr. Tarbell warns his readers at the outset that "text books on general or commercial bookkeeping and accounting are not of material benefit to the student of insurance accounting other than to ground him in fundamental principles."

The commercial and college-trained accountant is impressed with the difference between his experience or training and actual practice in casualty insurance accounting when it comes to determining assets and liabilities. In commercial accounting there is a precise recording of liabilities legally documented and supported in the general ledger with the principal assets determined by appraisal, estimation or inventory. In casualty insurance accounting the student discovers almost the opposite—a careful and exact recording of principal assets (for the most part legally documented bonds and stocks and mortgages) in the general ledger with the principal liabilities being determined by appraisal, estimation or inventory.

The universal use of tabulating cards and machines by casualty insurance companies has had a direct effect on the nature of the journals and general ledger maintained by such companies. Mr. Tarbell mentions general ledger accounts by lines of insurance for certain recordings. On page 295 he refers to premium and loss journals by line of insurance. On page 307 reference is made to bookkeeping entries for each of the various kinds of loss transactions for each line of business. On page 309 the statement is made that separate ledger accounts are maintained for assigned loss expense by line the same as in the case of losses. In practice, many of these subsidiary accounts are tabulating machine distributions of general ledger control accounts. In other words, the tabulating machine method of accounting has tended to reduce the purely bookkeeping procedures of journalizing and general ledger posting to the maintenance of control accounts only with all sub-ledger accounts, analyses and breakdowns prepared in the manner of statistical exhibits or tabulations.

On page 304 two methods of accounting for profit and loss items are mentioned as being in general use. The method followed in Mr. Tarbell's paper makes use of a single controlling Profit and Loss ledger account with annual statement detail maintained by subsidiary accounts. I prefer the second method which is to carry separate profit and loss ledger accounts for each such annual statement item.

My comments in the two preceding paragraphs may appear inconsistent. On the one hand, I prefer single general ledger control accounts for premiums, losses, and loss expenses with analyses by lines recorded as supplementary tabulations but, on the other hand, I have expressed a preference for separate general ledger accounts for each profit and loss item. The former involves tabulating card analyses of single general ledger accounts which serve as control accounts but in the latter, I prefer to avoid a grouping of several accounts required to be separately recorded in the statement and which involve relatively infrequent entries of somewhat unrelated items.

In his comments on unallocated loss expense on page 309, Mr. Tarbell points out that disbursements as shown on page 3 of the statement will not check with the Trial Balance as respects many items—salaries, traveling expense, rents, etc. This is true if the transfer from underwriting expense accounts is made to unallocated loss expense by memorandum or in statement work sheets only. It is also possible to transfer, by means of journal entries, definite amounts or percentages of underwriting expenses paid by accounts to unallocated loss expense after the first or regular monthly trial balance is drawn off. In a second or subsequent trial balance there would be recorded the net amounts to be reported as disbursements by underwriting expense account on page 3 of the statement.

In addition to the four journals mentioned on page 295—for recording premiums written, premiums paid, losses paid and expenses paid—mutual and participating stock companies must record dividends paid to policyholders.

Mr. Tarbell's revision of his former companion paper, which appeared in Proceedings XVI under the title Exhibits and Schedules of the Casualty Annual Statement Blank, has been presented at this meeting of the Society. Mr. Tarbell has rendered a distinctive service to the Society and its prospective members by his timely revisions of his two former papers on casualty insurance accounting.

MR. C. S. COATES:

Mr. Tarbell has admirably achieved the objective stated in his paper, of showing briefly the "rationale of the annual statement and the application of bookkeeping and accounting principles to the various insurance accounts." While it is true that his paper was prepared primarily for students of our Society, it also is true that those of us who have a more complete knowledge of the subject will benefit from a careful reading of this paper.

The writer found particularly refreshing Mr. Tarbell's references to the formula relationship between assets and receipts and disbursements which underlies the theory of the casualty annual statement, and also the comments on that seeming misnomer on the Income page, item 34, "Increase in liabilities during the year on account of reinsurance treaties."

In the author's comment on the handling of "Losses paid" and again in his comments on "Other non-ledger assets" no reference is made to the possibility that a company paying in full a loss upon which it has reinsurance recoverable may use the amount of reinsurance recoverable as a reduction of its liability for unpaid losses, either by insertion in column 3 at the head of Liabilities page 5 under the proper line of insurance for Schedule "O" lines, or by reducing the case basis outstanding reserve posted in the proper column of Schedule "P," parts I and II, on Schedule "P" lines. While in pure theory it might be argued that a reinsurance recoverable on a paid loss should not be used as a reduction against the amount owed on other unpaid losses, this situation is no different than the situation found in the makeup of the "Premiums in course of collection" figures on the asset page where reinsurance premiums payable are used to reduce the amount of premiums receivable.

In connection with the author's description of the "Premiums in course of collection" asset item it would be interesting to have his comments on the methods of securing in actual practice the line of insurance breakdown. In these days of increasing clerical costs arising, among other things, from the increase in reports required from insurance companies, the amount of expense to which a company should go to determine the line distribution accurately is a nice question. Under the generally accepted existing plans for production of business and collection of accounts it is almost impossible to secure an absolutely accurate distribution by line of insurance. The same situation of course obtains for the corresponding liability item of "Commissions, brokerage and other charges due or to become due to agents or brokers." It might also be worthy of comment in connection with the handling of the premiums receivable item to show that it is entirely possible for a certain line of insurance to have a negative balance due either to large unpaid return premiums being entered shortly before the close of the year or more possibly to a partial or complete reinsuring of premiums in force under that particular line of insurance. If a company negotiates a quota share reinsuring of premiums in force at the end of the year and has not completed the transaction by actually paying the reinsurance premium the common practice of deducting the unpaid reinsurance premium from the uncollected original premiums could easily result in a negative balance.

In the author's comments on Assets item 39 "Market value of real estate over book value, per Schedule A," the unqualified statement is made that insurance companies are required to compile their statements upon market values of assets. The author himself refers to an exception to this rule in his immediately following paragraph where he comments on the common practice of companies valuing bonds on the amortized basis by entering in item 40 of the non-ledger assets the excess of amortized values over book values, or by showing in the non-admitted assets any excess of book value over amortized value.

In conclusion, we believe the Society owes Mr. Tarbell a vote of thanks for completing this most helpful exposition of the items in the casualty annual statement blank. We hope that he will complete at an early date the promised similar write-up of the exhibits and schedules. His comments on schedules "G," "O" and "P" will be particularly helpful if he will go a little farther than just explaining today's actual handling, and comment on the conditions giving rise to the insertion of these schedules and on the usages to which they are put.

MISS EMMA C. MAYCRINK:

The following comments on Mr. Tarbell's paper entitled Casualty Insurance Accounting and the Annual Statement Blank are offered to emphasize the value of the subject which Mr. Tarbell has covered in such a meticulous manner.

Familiarity with the subject should be of the utmost value to many people who work in the accounting, actuarial and statistical departments of casualty insurance companies but who unfortunately will never have the opoprtunity to read the paper unless the members of this society having contacts with or actual supervision of the accounts department make it available to them.

Mr. Tarbell begins with the following statement: "Methods of Casualty insurance accounting are not and probably never will become standardized." It would seem to me that the Convention Blank should be recognized as the standard of the ultimate aim of insurance accounting and methods of keeping the books of accounts to fit the blank should be adopted. Railroad accounting for instance was standardized in accordance with the rules laid down by the Interstate Commerce Commission many years ago.

It is true that many bookkeepers and accountants of insurance companies do not recognize the Convention Blank as standard and therefore do not keep the books of accounts and subsidiary records so that they will be able to tie each account into the items called for annually by the blank or quarterly, as in New York State. As a result of not having the accounts set up to conform to the blank and because in many companies the accounts are kept on some system introduced by bookkeepers or accountants who are accustomed to commercial accounting and who are not familiar with the fundamentals of insurance accounting, much time is wasted and eventually unnecessary expense to the company is incurred.

I might cite an instance in connection with the examination of a new company. This company, which had an accountant not familiar with the Convention Blank and not interested in it, had its first department examination when the volume of business was small. It took three weeks to examine the company and make out a financial statement. After a year or more when the company had increased in size, the executives in charge realized that with their bookkeeping methods it was just about impossible to make a report in accordance with the annual statement requirements. They hired a new accountant who immediately studied the requirements of the blank and changed his books of accounts to support the items of the annual report. It took less than three days to examine the company after the changes were made.

The argument for recognition of the Convention Blank as standard and truing up the companies' accounts to its requirements is that the blank is uniform for all states and, while it is reviewed annually by the Committee on Blanks, a sub-committee of the National Association of Insurance Commissioners, the committee is slow to make radical changes in the items which make up the Income, Disbursements, Assets and Liability pages.

As a result of this uniformity, statistics can and have been taken for many years from the companies' reports by the various supervising departments and are published in department reports and also by the several insurance publications. The insuring public and the insurers have valuable information from such reports of not only the casualty insurance business but also of the life insurance business and the fire insurance business. The publications are to the insuring public as the Moody's and the Poor's manuals are to the investing public.

In order to understand the basic principles of the Convention Blank it is necessary to take specific notice of the difference between the so-called cash method and the accrued or revenue method of reporting.

As Mr. Tarbell has stated, Page 2 of the report calls for the ledger assets at the end of the previous year and all income and increases of ledger assets during the year, page 3 calls for all disbursements and all decreases in ledger assets for the year. Page 4 lists the ledger assets and the total is the balance or ledger assets at the end of the year. The blank provides for adjustments of assets by adding to the ledger assets non-ledger items such as accrued interest and adjustments in values which are not carried on the books. Deductions are made of not admitted assets such as the excess of book value over market or amortized values of assets and also such assets as are not admitted by law or departmental rulings such as furniture and fixtures and agent's balances due for over ninety days.

These three pages of the blank therefore may be summarized by two arithmetical formulas, the first which is a balancing of the assets carried on the books is as follows:

Ledger assets of the previous year plus income minus disbursements = ledger assets of the current year.

And the second formula which is a valuation of assets and affects surplus is:

Ledger assets plus non-ledger assets minus not-admitted assets = admitted assets.

The liabilities as Mr. Tarbell points out are not entered upon the books of account but are determined by means of memoranda accounts by inventory of the various registers and by formula methods. There may be a few exceptions but the carrying of ledger liabilities should be avoided where it is possible. I would go further than Mr. Tarbell and say that even borrowed money and funds held under reinsurance treaties need not be on the ledger. The treatment of the liability accounts according to the convention blank method is one of the chief objections of the commercial accountants to the method of accounts according to the Convention blanks. Actually the liabilities as determined by an inventory method should be kept as permanent records even though no entries for the same are made in the general ledger. However, these records are as much a part of the books of account as if the entries were made in the general ledger.

The best answer to the objections against this method of recording liabilities would seem to be to point out that the two largest and most important liabilities of an insurance company are the reserves for outstanding claims and the reserve for unearned premiums. It is an easy matter to demonstrate that these reserves are in a constant state of flux and in a going company can never be constant. In this respect the insurance company's accounts can never be as simple as those of a commercial concern.

For those who want to study the revenue or accrual basis results, the blank has a profit and loss statement on such basis in the underwriting and investment exhibit, which recapitulates the items of income, disbursements and liabilities as reported for the previous and the current year.

The exhibit not only divides profit and loss on underwriting from investments profit and loss but breaks up the underwriting items to show a comparison of incurred losses and incurred expenses in relation to premiums earned. Because of this method a test of the adequacy of rates and the companies' underwriting experience can be made and also of the expense ratio which is an indication of company management.

The underwriting and investment exhibit balances to surplus so that in this case the formula is:

Surplus at the end of previous year plus income and profits minus disbursements and losses = surplus at end of current year.

When Mr. Tarbell completes his paper giving the details of the various schedules and their relation to the items of the financial statement, I hope that the two parts will be printed and made available for distribution to many who are interested including not only the students of this society but others who are keeping accounts of insurance companies or who are studying the casualty insurance business for any other reason.

MR. J. C. MONTGOMERY:

To add anything of value by way of current discussion of Mr. Tarbell's carefully prepared paper to Mr. Davies' interesting review (volume 16, page 191) of the original paper, which was first presented in 1928, while keeping within the avowed purpose of the author, is quite a problem. As respects what is intended to be included in the various items comprising the annual statement, Mr. Tarbell has left little room for controversy, and while the title of the paper might imply the inclusion of a description of various methods of recording and compiling the data, the author has reiterated his position as indicated in his review of Mr. Davies' discussion, pointing out that such an undertaking was necessarily beyond his intention and the space available.

A paper so painstakingly prepared would seem, however, to justify the additional space necessary to emphasize the accounting procedure required to develop the final results of operation on the revenue basis, or, as it is often termed in insurance, the earned and incurred basis. To stop with a description of the significance of items included under the Income, Disbursements and Ledger Assets might lead the novice to conclude that the remaining steps necessary to complete the annual statement are more or less incidental, whereas, of course, the changes in reserves and certain assets involving elements of income are an indispensable part of the actual gain or loss. True, the author mentions the fact that these steps are effected as part of the Underwriting and Investment Exhibit, but the student might be excused for not understanding at first glance the importance of the transition. It might be of assistance to explain, for example, that the Underwriting and Investment Exhibit procedure, which takes into consideration these reserve and accrual elements as of the beginning and end of the accounting period, involves the same principle which, in commercial accounting, uses the initial and final inventory values of merchandise on hand to determine the cost of sales incident to establishing the gain or loss. In short, the cash basis is adjusted to the revenue basis to the extent of the net changes in reserves and accruals during the accounting period.

For the benefit of those for whom Mr. Tarbell primarily assembled his original and revised papers, principally students and those having some knowledge of general accounting but little, if any, contact with actual books of account for insurance companies, perhaps the fact might be stressed that the principal difference between the finished statement of an insurance company and that of a commercial organization is one of presentation, since, in the last analysis, as above mentioned, the annual statement develops through the Underwriting and Investment Exhibit, the same true factors of gain or loss as they might appear in a commercial statement, although, as Mr. Tarbell has indicated, in summary rather than itemized form. Other items affecting surplus, but not related to current operations, also are taken care of as in commercial accounting in a special section, in which surplus, at the beginning and end of the accounting period, is reconciled. Thus we see that while the two methods appear to be following different courses, in reality their objective is the same, and necessarily so.

If the Income and Disbursement sections are recognized in their true light, namely, as subordinate basic schedules of information, their function is clearer. They are essentially only the equivalent of a treasurer's report of receipts and outgo and, taken by themselves, have but limited value in an accounting sense until combined with or modified by changes in reserves related thereto. In some circumstances they can be misleading to the partially informed. Even to many in departments of insurance companies other than financial, they are at times confusing in their import. A solution might be to rearrange the annual statement so as to give the Underwriting and Investment Exhibit its proper prominence in accordance with standard accounting procedure, and to consider Income and Disbursements as supporting schedules only. Doubtless a method of consolidating the cash transactions and reserve changes could be devised, by means of which the result on a revenue basis would be more readily obtained without sacrificing the facility with which the statement, as now constituted, can be verified by State Insurance Departments.

Incidentally, it appears that Mr. Tarbell's formula, on page 296, defining the principle underlying the annual statement, is not quite complete, if by the expression "annual statement" we have in mind the complete accounting for change in a company's financial position during the year. The formula should include reference to the increases and decreases in accruals, reserves and liabilities, which, as above discussed, convert the cash basis to the revenue basis.

Although not specifically provided for in the printed form, certain items are occasionally inserted in the statement which illustrate the unusual effects resulting from the accounting procedure followed in its preparation. One such concerns what appears to be a "minus" asset, a form of accounting contradiction. These minus assets arise principally from receipts which are of a trust nature, and not related to elements of income or expense. Often they represent deductions from salaries which are by law withheld by the employer to pay various Federal and State taxes, such as Social Security, Federal Old Age and income taxes. They are, in fact, liabilities, and in any other form of accounting appear under that heading. If such transactions are treated as income or disbursements, as the case may be (an alternative form of unorthodox accounting), the "minus" asset effect can be avoided, it is true, but at the expense of minor complications elsewhere in the preparation of statements for public consumption.

It might also be in order to explain that while the annual statement uses certain headings peculiar to insurance, such as "ledger," "non-ledger" and "not admitted" assets, there is no absolute necessity to maintain these distinctions in a company's internal accounting procedure if a complete ledger showing all assets and liabilities is preferred. Interest accrued, designated "non-ledger," can, for example, be journalized and posted prior to closing the books annually, or at any desired interim period; also, that while, as Mr. Tarbell mentions on page 323, the liability items, with a few exceptions, are not taken from the books of account, this is simply because the statutory loss and premium reserves first require adjustments through extensive specialized calculations after December 31. While, in practice, the annual statement is first completed before formulating the closing entries for the ledger, this is merely because the annual statement is, by comparison, but the "work sheets" which are the foundation in standard accounting for the adjusting entries necessary to close the books.

The author's purpose obviously was neither a defense of the construction of the annual statement nor a criticism of it. His paper is valuable as a source of up-to-date definitions of the items appearing in the statement as it is required to be compiled, and, as such, nothing of importance appears to have been overlooked. The foregoing comments are, therefore, offered merely to amplify certain points. Those interested in securing a basic understanding of what is considered to be a complicated subject, will find its material most helpful.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. THOMAS F. TARBELL:

The author appreciates the interest shown in this paper as evidenced by the number and scope of the discussions. The various points brought out are constructive, helpful and clarifying.

As Mr. Masterson has pointed out, the author has dealt with casualty insurance accounting as "she is." Mr. Montgomery's suggestions for possible improvements in the form and make-up of the statement are pertinent and might well be given consideration by insurance departments, which control the ultimate form of the annual statement blank. More emphasis upon results rather than details would undoubtedly make the statement more understandable from the point of view of the layman.

One very important point, brought out by Miss Maycrink and others, is that the blank is standard and, while accounting and other records may vary by company, they must be so designed as to conform to the requirements of the blank. So long as the requirements are met, it is not essential that methods be standardized.

Mr. Montgomery's remarks pointing out the differences between commercial accounting and insurance accounting, and showing that the two attain the same ultimate end, the operating results and surplus changes, are a valuable addition. It is obviously possible, by journalizing non-ledger assets and liabilities, to adjust the books of account at the year end to the "revenue" basis and provide a check between the general ledger trial balance and the statement for practically every item. However, there appears to be no particular advantage in this and it is rarely done.

"Minus" ledger asset items normally exist in the accounts of casualty companies. They occur in connection with return, refund and reinsurance ceded unpaid premiums and in such accounts as agents' sundry balances. These accounts, however, are combined with corresponding debit balances and the net balance is normally a debit. However, as Mr. Coates points out, it is possible that the net balance may be a credit. In such cases, it is usual to show the item as a "minus" ledger asset.

The use of reinsurance recoverable on paid losses on the compensation and liability lines as an offset to or reduction of unpaid losses, as suggested by Mr. Coates, is, the author believes, a general practice, as Schedule E of the statement does not contemplate such reinsurance.

The problem of accurately determining the distribution of premiums in course of collection by line of insurance is a troublesome one. Companies handling premiums on an "item" basis usually set up separate premiums in course of collection accounts by line. This account is debited for written premiums and credited for paid premiums. However, in the handling of thousands of premium items, it is impossible to avoid errors by line. Such errors in the balances of the accounts can only be eliminated by periodical inventories of the individual items supporting the balances. Companies operating on the "accounts current" basis must analyze the individual unpaid balances to determine the accurate distribution of such premiums by line. The fire annual statement blank recognizes the "accounts current," or "agents' balances" basis of accounting. Commissions are recorded on the "written" rather than the "paid" (casualty) basis and consequently the balances are net (less commissions). This method has certain advantages as it simplifies the accounting records and could be used by casualty companies whether operating on the "item" or "accounts current" basis.

Mr. Masterson's comments regarding journals, ledger and subledger accounts and statistical exhibits are particularly pertinent and could be greatly expanded. The present tendency is to set up inclusive control ledger accounts and provide for details in sub-ledger accounts. Certain journals and ledger accounts are no more than statistical tabulations. This indicates the desirability of an up-to-date treatise on the details of casualty insurance accounting. While Mr. Hull's book "Casualty Insurance Accounting" is an excellent volume, so much progress has been made since it was written that much of the material is out of date.

The author acknowledges the deficiency in the definition of the principle underlying the annual statement pointed out by Mr. Montgomery. It should have been brought out in the paper that this principle applied to that part of the statement dealing with income, disbursements and ledger assets. Mr. Coates properly takes exception to the general observation that the statements of insurance companies are compiled on the basis of market values.

The exception to which attention is called, the use of amortized values for bonds, should have been pointed out in the paper.

THE NEW YORK MOTOR VEHICLE SAFETY RESPONSIBILITY ACT—HAROLD M. JONES

VOLUME XXVII, PAGE 331

WRITTEN DISCUSSION

MR. WALTER T. EPPINK:

The paper prepared by Mr. Jones concerning the New York Motor Vehicle Safety Responsibility Act sets forth in a complete and comprehensive manner an analysis of the Page-Anderson Bill as it was signed by the Governor. However, several months have elapsed since that time and much discussion has been had concerning the actual operation and the administrative difficulties presented in connection with this law. It is my purpose, therefore, to try to supplement his Article to some extent by a discussion of some of these problems and at the same time touch on one or two of his statements which might be subject to controversy.

Mr. Jones states that although this is not a compulsory insurance law, it is the nearest thing to such a law that has been adopted since the Massachusetts Compulsory Act. The Massachusetts Act was adopted in 1926. The New York Act follows very closely the New Hampshire Act which was adopted in 1937. As a matter of fact, one of the important inducements to the adoption of this Act in New York State was the successful operation of the law in New Hampshire.

The increase in the number of insured cars immediately after the enactment of the New Hampshire Law was very substantial. However, the New Hampshire Law, as enacted, contained a provision which required proof of insurance as a prerequisite to registration from the owner of every car which was encumbered by a lien, whether a chattel mortgage, conditional sales contract, or otherwise. The New Hampshire Law became effective in September of 1937, and it was not until 1938 that this provision of the law was declared unconstitutional (in the case of Rosenblum v. Griffin, 197 A 701), and it was subsequently repealed.

It is obvious that a part of the substantial increase in the number of insured cars was due to this provision of the law. The exact percentage is, of course, impossible to determine. To such extent, however, the New Hampshire Law was much more drastic than our present New York State Act. Since that time, the percentage of insured cars in New Hampshire has increased and is still increasing so that the effectiveness of the law is demonstrated in spite of the deletion of that provision.

Mr. Jones also states that under the New York law, the Commissioner of Motor Vehicles is empowered to suspend or revoke operators' licenses, registration certificates and plates "upon any reasonable ground" until proof of financial responsibility is given, etc. The reference is accurate as far as it goes, but it should be borne in mind that such reasonable ground must appear on the records of the Motor Vehicle Bureau, the exact language reading as follows:

> "Upon any reasonable ground, appearing on the records of his bureau, the commissioner may suspend or revoke the operator's or chauffeur's license of any person and may suspend or revoke any and all of the registration certificates and registration plates for any motor vehicle and may refuse to issue to any such person any new or renewal license, or to register in the name of such person any motor vehicle unless and until such person gives proof of his financial responsibility in the future as hereinafter provided in this article."

In commenting on the provision of the Act which prevents registration in the name of any person of a motor vehicle, the owner of which has become involved under the Act, or in other words, the so-called "marketability" provision of the law, Mr. Jones states that "only a receiver or trustee in bankruptcy, a judgment creditor, and in some cases a lien or mortgage holder, can take possession and legally register it in New York." It should be borne in mind that the judgment creditor referred to, in whose name the vehicle can be registered, is a judgment creditor who became such as the result of an action for damages resulting from the accident which caused the judgment debtor to lose his operator's and/or registration certificates.

In this connection, it is of interest to note that the State of New Hampshire originally had in its law a similar provision. Officials of that State advise that there was no other feature of the law which gave rise to so much dissention and dissatisfaction. Automobile dealers would take in trade an automobile, the owner of which had become subject to the law, not knowing of the involvement, and when they disposed of it, the purchaser would frequently find that he could not obtain license plates for it. In the State of New Hampshire, there is but one central office for the issuance of license plates so that a fairly accurate "black list" could be maintained as to cars which were so involved. Nevertheless, its Motor Vehicle Commissioner has stated that it was almost impossible to administer this section. In New York, licenses are issued in every county of the State. An index would have to be prepared and constantly supervised and revised, listing this type of automobile according to make, motor number, and serial number. Furthermore, such information would have to be constantly relayed to each of the offices throughout the State from which license plates are issued. It is possible that by some teletype system, or otherwise, such information could be so relayed but obviously the cost would be prohibitive and in many cases subject to inaccuracies.

In this connection, also, consideration should be given to the fact that the Commissioner of Motor Vehicles is required to wait ten days after receipt of an accident report before he can take any action to suspend or revoke registration. Some such waiting period is necessary in order to give motorists an opportunity to comply with the law. During this interim or waiting period, a motorist who was so inclined could transfer his ownership of the vehicle and have it registered in some third person's name. It is obvious that such provision could be so evaded in any event.

In New Hampshire, this provision has been repealed in its entirety and officials of New York State frankly admit that if the law is continued in its present form, it would be impossible to enforce this provision. Consequently, even though some modification is made to protect the holder of a bona fide lien, the administrative problem of the Motor Vehicle Bureau will not be eliminated, and it would seem that the only practical change that can be adopted is the complete elimination of the "marketability" language.

It has been contended that such an amendment will remove some of the "teeth" from the law, but it may well be argued that this would be preferable to a law that could not be enforced. A law which is enforced against the person who becomes subject to it to the extent that his personal operating and registration privileges are cancelled is drastic and effective in removing him from the road. On the contrary, a provision, the only effect of which can be to "punish" the automobile by making it unmarketable, will inevitably arouse disrespect for the statute when it is discovered that it is unenforceable.

Among the changes which have been proposed to the law, as Mr. Jones has pointed out, is one eliminating the necessity of reporting accidents on property damage losses where the amount of damage does not exceed $25.00. Since its enactment, the Joint Legislative Committee of the Senate and Assembly to consider revision of the Insurance Law has held several meetings on this law, and many meetings have likewise been held by representatives of the Department of Taxation and Finance, the Motor Vehicle Bureau, State Bar Association, insurance interests, and other interested groups. At the present time, it is pretty well agreed that this amendment should be adopted.

The reasons for such an amendment are well-founded. In 1940, under the law then in effect in New York State, only those accidents involving personal injury or fatality were required to be reported. There were some 75,000 such accidents for which about 130,000 reports were made. It is estimated that there will be approximately six reports of accidents involving damage to property for each accident involving personal injury or death. This would mean approximately 800,000 property damage accident reports that could be anticipated without giving any effect whatever to the increase in motor vehicle registration. Such increase is substantial. In 1940, there were some 2,800,000 automobiles registered in New York State, and according to present estimates, there will be an increase of at least one-quarter million cars in 1941 and possibly a still greater registration in 1942. Discounting such increase, however, and based entirely on the 1940 figures, it is probable that between 900,000 and 950,000 liability and property damage accident reports could be anticipated by the Motor Vehicle Bureau. According to available statistics, if property damage accident reports involving less than $25.00 are eliminated, 75%, or some 600,000, of such reports would be excluded. The expense of receiving 600,000 reports, checking for completion, matching with the corresponding report from the other person involved in the accident, filing, and handling generally is tremendous. It appears that almost everyone interested in the law appreciates this fact and is in favor of this amendment.

As the law now stands, it applies to everyone whose car is involved in an accident, even though one of the parties may be completely free from negligence. The New Hampshire statutes, which contained a similar provision, were amended so that the Motor Vehicle Commissioner could waive compliance with the law as to any party whom he found free from blame. In this state, there has been considerable agitation for a similar amendment, but because of the great number of reports which are anticipated, a tremendous burden will be placed upon the Motor Vehicle Department if discretion is to be exercised on the question of negligence and responsibility for an accident. Most people involved in an accident feel that the other person was to blame, and, therefore, if this question is left to the decision of the Motor Vehicle Commissioner, it is anticipated that pressure for relief will be brought to bear in many cases. If, on the other hand, the law requires him to exact security and proof of responsibility for the future in every case, there will be less tendency to seek this relief.

Under the wording of the statute, there is still some discretion left in the hands of the Motor Vehicle Commissioner since he is required to demand "sufficient" security for the damages resulting from the accident. (Incidentally, another amendment has been proposed to change this word "sufficient" to "reasonable" to relieve the Motor Vehicle Commissioner from the possibility of personal liability if it should develop that his judgment as to what was sufficient security should prove erroneous.) If the Commissioner should determine that one party is blameless, he might ask for a very nominal amount of deposit and relieve such blameless party to this extent. Of course, such party, even though blameless, would still be required to post proof of future responsibility and thereafter forever maintain such proof. It may be argued that this is an undue hardship, but it is to be remembered that the objective of this law is to induce peope to purchase, voluntarily, the insurance which a compulsory law makes mandatory.

In other words, under a compulsory insurance law, the test of whether or not the person must furnish proof of insurance is whether or not he desires the car to be registered. Under this law, the test is whether or not his car is uninsured and is involved in an accident.

There is another matter of interest to which attention should be called. The wording of the statute as it now stands, provides that the Commissioner "shall not require security or proof" from an owner or operator if either "shall satisfy or has satisfied the commissioner that the liability, if any, for damages resulting from such accident is insured by a liability policy or policies, or by a bond" in the specified amount.

Under this provision, even though the Commissioner ascertains that a policy of insurance or a bond was in effect covering the automobile involved in the accident, he would still be duty bound to make sure that the liability arising from such accident was itself covered. In other words, if a breach of the policy were involved, so that the particular accident was not covered, the holder of such policy would still be subject to the law and would be required to make immediate deposit and furnish proof for the future. The administrative difficulties in enforcing any such provision are obvious. Equally obvious is the dissatisfaction which would arise on the part of a motorist who had purchased what he considered to be adequate insurance protection to discover that, because of his breach, under the terms of the policy he had no protection whatever.

In an effort to overcome these objections, the companies have agreed to substantially broaden the coverage afforded by the New York Standard Automobile Liability policy. For example, they have eliminated the under age exclusion, they have broadened the coverage in so far as driving for a consideration is involved, and they have also broadened the use of trailers. The net result of these and other changes is to afford to the insurance buying public generally, a much broader form of protection. The exclusions that now remain in the policy are comparatively few, and it is anticipated that cases which will arise involving a breach of such terms will be negligible. Nevertheless, it is proposed to amend the law so that if a breach of the terms of the policy is involved in any particular accident, a person will still be able to drive his car so long as he had in effect a standard policy covering the automobile involved at the time of the accident. The net result of this amendment, therefore, will be that if there is in effect a standard liability policy of insurance as to the car involved, even though the particular accident is not covered, the owner and operator will still be able to drive such automobile without having his license suspended or revoked, or without furnishing any deposit of security for the damages caused by such accident.

If, however, an action is brought arising out of such accident and a judgment is recovered against such operator or owner, which judgment remains unsatisfied because the insurer denies liability and the owner or operator refuses or is unable to pay such damages, then and in that event, the licenses and registration certificates of such owner and operator are subject to revocation by virtue of the section which requires such action by the Commissioner upon failure to satisfy such a judgment.

Another significant feature of the law, and as indicative of its purpose to induce the motoring public to buy insurance protection, is the language which requires a deposit and proof forever after from an uninsured person involved in an accident. For example, even though the uninsured motorist who becomes subject to the law makes the deposit required, he is still required ever after to carry insurance or furnish other proof of financial responsibility; whereas, a person who is insured is not required to maintain proof thereafter. If he subsequently permits his insurance to lapse, however, and then becomes involved in an accident, he is in the same position as the individual who became involved without any insurance in the first instance.

This law does not become effective until January 1, 1942. Necessarily, there will be a lapse of time between the convening of the Legislature and the time when various proposed amendments can be enacted into law. Some question has arisen, therefore, as to what the attitude of the Motor Vehicle Department will be during such interim so far as the enforcement of the law is concerned. Present indications are that this Department will not too rigidly enforce those sections of the law which concededly are to be amended.

MISS BARBARA H. WOODWARD:

Mr. Jones gives a clear exposition of the requirements under the New York Safety Responsibility Act which will become effective as of January 1, 1942.

He does not argue the merits or demerits of financial responsibility against compulsory insurance but he does point out that the New York Superintendent of Insurance is in favor of a compulsory law. The main reasons for the Superintendent's preference are that a law of this type is social legislation and should provide compensation to all innocent victims for their injuries and also a financial responsibility law will of necessity be more expensive and more cumbersome to administer than a compulsory law.

In regard to payment for injuries the new law provides that, among other reasons, a motorist comes under its provisions upon involvement in an accident. The innocent victims of these "first accidents" may be left without compensation unless the motorist has voluntarily taken out insurance or is otherwise financially responsible. During 1939 there were 73,442 accidents in New York State in which 106,351 drivers were involved. Of this number 94,548 drivers were involved in their first accident. During 1940 the corresponding figures were: 72,433 accidents with 105,602 drivers, 95,863 of whom were involved in their first accident. The figures for the first eight months of 1941 show an increase over the corresponding period for 1940. The 1941 figures up to the end of August show 46,482 accidents in which 68,411 drivers were involved, of whom 62,173 were first accident drivers. Assuming that the new law will have the same effect in encouraging insurance as it has had in New Hampshire, it would still leave about 25% or 23,000 "first accident" drivers who would not be insured. This number of course would be somewhat reduced by the number of innocent drivers in accidents involving two drivers. Out of the remaining negligent drivers there will undoubtedly be a fairly large number who are not financially responsible. For this reason it might be desirable to set up a fund derived from the operator's license fees of uninsured operators with which to pay unsatisfied judgments in these "first accident" cases. The judgment creditor could then be required to reimburse the fund before obtaining another operator's or owner's license. In this way the loophole would be filled between the financial responsibility law and a compulsory law as respects compensation of innocent victims. At the same time the safe driver would retain his safety consciousness and accident prevention attitude by not being forced to buy insurance as long as he remained accident free.

Proposed Amendments to the Law

As Mr. Jones points out, some objections to the new financial responsibility law have already arisen and discussions are under way which will undoubtedly result in amendments being introduced into the 1942 legislature. One of the topics being discussed is the status of the innocent party to an accident. Under the present law any driver involved in an accident whether innocent or guilty is required to file security for that accident and thereafter to maintain proof of financial responsibility for future accidents. The amendment under discussion will probably still require the innocent party to file security and proof until vindicated by judgment, at which time the requirement for proof of future financial responsibility would be cancelled.

Present Section 94(e) requires an insured owner or operator, in the event of an accident, to satisfy the Commissioner of Motor Vehicles that his insurance policy covers the liability arising from the accident before such policy will be accepted as security. An amendment being considered would allow the Commissioner to accept as security, the standard automobile liability policy approved by the Superintendent of Insurance, without examination to determine coverage for the specific accident involved. The standard policy has already been revised and broadened so that the chances of an accident not being covered are extremely remote. Of course when a policy is filed as proof of future financial responsibility it becomes absolute as far as third parties are concerned.

An amendment is also being considered to take care of cases where the owner and the operator of the car involved in the accident are different persons. It is proposed that the owner's insurance policy shall be sufficient security for damages caused by the operator. On the other hand, if the operator were insured and the owner was not, the operator's policy would not relieve the owner of any of the provisions of the act. This is in line with Section 59 of the Vehicle and Traffic Law which makes the owner liable for the negligence of the operator.

As Mr. Jones has suggested, the cost and difficulty of administering the act and the method of assessing that cost has evoked considerable discussion but no amendments along this line have yet been proposed.

Since the time Mr. Jones' paper was written, the insurance carriers both stock and mutual have voluntarily organized the "New York Automobile Assigned Risk Plan." Briefly, the plan is designed to secure coverage in an authorized company for those risks who are not specifically excluded from the Motor Vehicle Safety Responsibility Act, and who are in good faith entitled to insurance but are unable to secure it for themselves. A risk becomes eligible for the plan after being refused insurance in writing by three carriers. A risk is not considered to be in good faith entitled to insurance if (1) within the preceding three years he has been twice convicted of certain offenses; (2) has a major mental or physical disability; (3) during the previous twelve months intentionally registered a motor vehicle in the State illegally; or (4) failed to pay prior automobile insurance premiums during the previous twelve months. These risks appear undesirable from an underwriting point of view and if they are unable to show financial responsibility they will be barred from the road and the best interests of the general public will be served.

The risks will be assigned to the carriers on the basis of automobile premium writings with due regard to the facilities of the carrier for servicing the risk. All risks assigned under the plan are subject to regular manual rates including the surcharge for convictions if applicable and plus a surcharge of 10% for long haul trucking risks and 15% for all other risks. Provision has also been made for charging higher rates if necessary, upon obtaining approval from the Superintendent of Insurance.

In order to prevent the freezing of a risk as an assigned risk, the insured has the privilege of seeking another carrier willing to write the risk at normal rates and any carrier is privileged to do so if in its underwriting opinion the quality of the risk has improved. An assured may appeal from any ruling of the Governing Committee or Manager of the Plan to the Superintendent of Insurance.

It should be noted that this plan does not apply to public automobiles required to carry insurance under Section 17 of the Vehicle and Traffic Law. In this field of compulsory insurance the need for an assigned risk plan has so far never arisen.

MR. E. A. COOK:

Mr. Jones has given such a clear picture of the New York Motor Vehicle Safety Responsibility Act, which is to become effective on January 1, 1942, that it is difficult to comment on his paper. I should, therefore, like to add a few new developments, and contribute a few thoughts, which have occurred to me since the enactment.

Certain amendments to the new law have been proposed. In principle they are as follows:

1. That section 94 (e) of the Law be clarified so there will be no doubt if a person has a standard automobile liability policy in effect at the time of the accident, the penalties imposed by that section for being involved in an accident will not apply to such person.
2. That no property damage accident not in excess of $25.00 be reported instead of reporting all property damage accidents as now required by section 94 (f).
3. That the Commissioner of Motor Vehicles may in his discretion relieve an innocent party from the penalties provided by section 94 (e).
4. That a method other than the present method be provided in assessing the cost of operating the law.
5. That something will have to be done about section 94 (h) which at present prohibits the re-registration of the automobile involved in the accident in the name of any person. Whether such proposal, if finally accepted, will make an exception in favor of bona fide holders, or whether it will remove this restriction completely, as was done in New Hampshire in 1939, is still uncertain.

An assigned risk plan for New York similar to that in operation in New Jersey, Connecticut and New Hampshire and other states has been sanctioned by the Superintendent of Insurance on an experimental basis and is to be put in operation October 15, 1941.

The matter of assessing the cost of administering the law by the Commissioner of Motor Vehicles is receiving a great deal of attention. It is generally agreed that the present method providing for assessment of insurance companies and self insurers on the basis of the number of vehicles for which proof of financial responsibility was furnished is not satisfactory. Alternative suggestions are that such assessment be based on:

1. A small extra charge for licenses to drive.
2. Net written automobile liability and property damage insurance premiums.

These two suggestions and the method at present in the law would, in effect, assess the cost of administering the law directly on the motoring public or on the insured auto owner through increased insurance rates. As the law is designed to benefit the entire public the only fair method of providing the funds for its administration would be from the general funds of the State.

In order to illustrate the forcefulness of the new law, allow me to call attention to the conditions surrounding the following hypothetical situation.

John Doe is a chauffeur for Richard Roe, who owns a truck used in his business, but not insured and the owner not in a position to provide the alternative security required by the law. John Doe, the chauffeur, is not acquainted with this fact. John Doe meets with an accident but is entirely blameless, yet due to the stringent requirements of the law his license to drive is suspended, thereby depriving him of the means of earning a livelihood. His employer's registration plates are surrendered, but the business goes on as usual because if a truck is essential to the conduct of business it is a simple matter to hire one.

This situation should be corrected as there is a little doubt it works a hardship on the chauffeur, although he may find a new employer willing to furnish proof of financial responsibility for him. It is not a simple matter to correct it and still accomplish the intent of the law, but time and experience will no doubt bring forth some practical solution to the problem.

Section 94gg of the Act gives the Commissioner of Motor Vehicles broad discretionary powers in his dealings with self-insurers. It will be interesting to learn what rules and regulations he will set up for the close supervision and scrutiny necessary to insure the payment of damages by those who are self-insured.

There will probably be some clamoring for an immediate reduction in insurance rates based on the expected large increase in insured cars, but in fact there should be an increase in rates to provide for such additional expense as the cost of administration of the law and a great deal more home office detail consisting of filing policies or certificates, with their subsequent changes, and the probability that more extensive statistical information will be required. It is possible that the increase in insured cars will not come up to expectation, due to the increased taxation and generally higher living cost which may force many people to give up their cars, temporarily at least.

In its main provisions the new law is strict, even severe, in application, but fair to all motorists alike, and is the strongest legislative inducement to carrying insurance, short of compulsory law.

New York is now one of three states requiring evidence of financial responsibility from any one involved in certain accidents even though he may be blameless. The New York Law, however, goes a step farther than the other two and prohibits a motorist from selling or transferring his vehicle after his registration has been suspended.

Merely as an observation, it is interesting to note that any judgment arising out of an accident that is awarded for more than the maximum responsibility provided for by the law, need not be settled in full in order to lift the Motor Vehicle Department's suspension. Thus a judgment debtor, with a $20,000 award against him, could obtain his permits on payment of the first $5,000 of the judgment. It appears, then, that stringent as the New York Law is, the "victim" of an accident may, in many instances, still be deprived of equitable compensation.

The proposed amendment to eliminate the necessity of filing a report of Property Damage accidents not exceeding $25.00 is commendable, but in my humble opinion does not go far enough.

Has any Financial Responsibility Law had any other connotation than the urge to compensate for the loss of life and limb? One very rarely thinks of property damage when considering such a law. When we assert that the law was drafted to give every man, woman and child in this state greater protection against the growing menace of street and highway accidents, it appears to the writer that property damage is quite incidental to the sense of personal loss this language conveys. When one considers that the average property damage claim is for less than $60.00 and that at least 90% of all property damage claims are settled for less than $125.00, it would appear that property damage might well be left out of the Law's requirements and the machinery of administration enormously helped thereby. It follows, too, that the man who feels impelled towards a policy of insurance would almost invariably purchase both bodily injury and property damage coverage.

It is the property damage accidents which threaten to clog the machinery of the new law, and the expense and work involved will far out-measure any distress caused to the victims of such accidents, particularly in view of an expected increase in the number of cars insured to include this cover.

It has been said that the acid test of the new law is the machinery for its administration. Certainly, if the law were confined to the bodily injury feature, the relief from details would definitely guarantee successful administration.

In that the new law penalizes the faulty and habitually careless driver, it is a powerful incentive to safe drving, and while the bill primarily is a safety measure penalizing bad drivers, the net effect will be to increase the number of insured cars and promote more careful driving not only by those insured but also by those who are trying to avoid coming under it.

No one can foresee how the new law will work out. If we use the New Hampshire Act as a guide, we can expect some degree of success, but the problems in New York will be many times those in New Hampshire due to the tremendous difference in the number of motor vehicles involved.

There is no doubt that the new law will be instrumental in reducing traffic accidents, because the motoring public will soon become aware of the fact that fewer accidents result in lower insurance rates.

Finally we can look for closer scrutiny of insurance rates by the Superintendent of Insurance, the probable demand for more extensive statistical information concerning such rates and the possibility that they may become the subject of political discussion.

REVIEWS OF PUBLICATIONS

CLARENCE A. KULP, BOOK REVIEW EDITOR

Accidental Injuries. The Medico-Legal Aspects of Workmen's Compensation and Public Liability. Henry H. Kessler, M.D., Ph.D., F.A.C.S. Lea & Febiger, Philadelphia, 1941. Pp. 4, 795.

In the May 1926 issue of the *Journal of Industrial Hygiene* (Vol. VIII, No. 5) appeared a 10-page article by Dr. Kessler on the *Estimation of Permanent Disability in Industrial Accidents.* This article dealt with a proposed method for rating arm and leg disabilities and is the basis of the author's present method of rating such disabilities. The first edition of Dr. Kessler's work, entitled *Accidental Injuries,* was published in 1931 and was a welcome addition to the limited and insufficient literature on the subject of the evaluation and compensation of the effects of industrial injuries. "The entire book has been completely revised and enlarged, while special attention has been given to the chapters on *Traumatic Neurosis* and *Rehabilitation.* . . . The original arrangement has been retained, and the basic principles underlying the evaluation of permanent disability have been emphasized."

"This book," says the author, "is concerned mainly with the physician's responsibility in the interpretation of [workmen's compensation] medico-legal problems, and is based on an experience covering more than 100,000 cases examined at the New Jersey Rehabilitation Clinic and the New Jersey Workmen's Compensation Bureau during the past twenty years." Dr. Kessler is Medical Director of the New Jersey Rehabilitation Clinic and was formerly Medical Advisor to the New Jersey Workmen's Compensation Bureau. Dr. Fred H. Albee, in a foreword to the book, says that "Dr. Kessler has had exceptional experience. . . . Each claimant is examined by the medical director prior to his hearing. Thus the author has occupied a key position between surgery and industry, which gives him a proper perspective on which to base practical suggestions."

Whether the book is intended for the doctor as a medical expert in arbitrating the end results of industrial injury, or for the education and information of non-medical members of industrial accident commissions and the claims and legal departments of insurance carriers and employers, is sometimes difficult to ascertain. In general the contents are easily comprehensible to the informed layman. The book covers a wide range and in consequence must deal sketchily with much of its subject matter. On the other hand it sometimes goes into too much detail. There is too much variety of subject matter, and much material is included that has little value in determining the extent of temporary and permanent disability. While one cannot say that the data included are out of place in a book entitled *Accidental Injuries,* there are standard works that give more complete and valuable information on subjects such as *Disease and Trauma, Occupational Disease* and *Rehabilitation.*

The book concerns itself primarily with "important medical questions such as the determination of the relationship between injury and disease, the determination of the period of temporary disability, and the evaluation of permanent disability. . . . The responsibility of translating this disability into mathematical terms has been left to the physician." In the chapter on *General Principles Underlying Disability* the author sets out his system and criteria for evaluating permanent partial disabilities. "The fact that the majority of permanent disabilities are partial rather than total emphasizes the importance of some definite method for rating the extent of impairment caused by an industrial accident. . . . In choosing a definite criterion for the evaluation of permanent disability, several considerations must be satisfied. The method or principle must be practical. The method must be uniform. The method must be accurate. And finally it must not be affected by the variations of the disabilities."

Nearly all discussion of the proper basis for evaluating permanent disability has been on the theory of loss of earning capacity, and schedules have been drawn up, said to be based on this principle. Dr. Kessler discards this on the theory that: "every man is a law unto himself" because of the marked variation of earning capacity between individuals with the same type of disability. The author adopts "functional loss" alone as the basis of evaluating permanent disability, "since it fits the postulates set forth of being practical, uniform, accurate, and not affected by variations of the disabilities."

In Chapter VII his method of measuring function of the upper extremity is set out in detail. This description is too long and involved to summarize in a review. The reviewer will therefore quote only a few of the rules and conditions of the method.

The fundamental principle is the evaluation of physical disability in terms of function. Function in the upper extremity for example resolves itself into the following physiological factors: (1) motion of the joints, (2) strength of the muscles, (3) coordination and control through the nerves. The measurement of these quantitative components is an index to the functioning of the upper extremity, an indicator of its value as a working unit.

The upper extremity is divided into two component parts: the arm radical and the hand radical. In measuring loss of motion of the arm radical, only the 3 major joints are taken into consideration that form the compound lever for the tool (the hand and fingers): the shoulder, elbow and wrist joints. The range of motion in these joints is compared individually to that in the respective joints of the opposite arm. In measuring the loss of motion for any joint, only one movement is to be used as an index to the loss of motion for that joint as a whole: the motion showing maximum loss. Although from a functional point of view one joint may be of greater importance than the others, the author cannot determine which is of the greatest value from a physiological point of view. Therefore an equal value has been ascribed to the shoulder, elbow and wrist. If more than one joint is involved the losses in the joints involved are added. Forearm rotation is considered a function of the elbow joint.

Muscular strength is next measured, using the opposite side as a norm. Strength is determined by the dynamometric method, which utilizes as a test of muscular efficiency the force of single maximal contractions on deformable springs. The Martin spring balance is recommended for this purpose. The special feature of this test is that instead of making a positive effort the subject confines himself to resisting a pull exerted by someone else.

Since the efficiency of a muscle depends also on its ability to respond to the excitation of a nerve stimulus that directs its action, coordination must also be tested. This factor is determined by using certain accomplishment tests, devised chiefly by psychologists.

Just as it is impossible to say which joint in the arm radical is of greatest importance physiologically for the routine pursuits of life, so for the same reason equal value must be ascribed to the 3 functional factors: motion, strength, coordination. The functional loss of any joint in the arm radical is equal to the maximum loss of any of its components.

Measurement of loss of function of the hand radical consists in determining the ability to grasp small objects and large objects, and the opposition between the thumb and tips of the fingers. Thumb opposition represents 40 per cent and grasping power for large and small objects 30 per cent each of the function of the hand.

Several inconsistencies would appear to result from these rules. For example, in measuring motions of the shoulder, the total loss of motion is taken as equal to that loss of motion showing the greatest loss. Suppose that extension shows a 90 per cent loss of motion, and all other motions show only a 10 per cent loss. Then the loss of motion in that joint would be taken at 90 per cent, measured by perhaps the least important of all the motions of the shoulder. In appraising the arm radical, equal value is given to the shoulder, elbow and wrist joints. A stiff elbow in extension would be given the same value as ankylosis of the wrist joint in good position. This does not seem equitable. This seems to be recognized by the author when he says, "The position of the ankylosed [elbow] joint is the deciding factor in arriving at an estimate.... At a straight angle I would estimate 66 per cent disability [of the arm]." Here the author considers factors other than those set out in his functional loss method.

Dr. Kessler, that is, starts out to devise a system of rating permanent disability based entirely on what he calls "functional loss." In permanent disabilities from arm and leg injuries he applies his rules and postulates. But when he gets into the problem of evaluating injuries to other parts of the body, such as the head, thorax and abdomen, he falls back on the old methods that are still so widely used; that is, on arbitrary estimates originated in other jurisdictions, especially in Europe. In other words, each case is decided on its own merits with such guidance as may be secured from precedents, the literature on disability evaluation and legislative schedules.

In appraising the permanent results of these other injuries Dr. Kessler's estimates are frequently determined only after a work or function test in "the curative work shop" that is available to him as Director of the Rehabilitation Clinic. He therefore has an advantage not available in many jurisdictions nor to the medical profession in general.

He quotes freely from ratings made in other jurisdictions, principally by European authorities; and he has collected considerable data about a number of rare and unusual diseases supposed to result from injury.

Although the reviewer is more familiar with the problems connected with appraisal of permanent disability, he was considerably interested in the author's discussion on compensability, pathology, etiology and the results of injury and traumatic disease or aggravation of disease. Some subjects have been discussed quite fully while others have been inadequately considered. Perhaps the reason is that the author has had more experience with some subjects than with others.

The author does not always make it clear what is requisite to prove compensability. He seems to demand a medical conclusion, which requires positive proof from cause to effect whereas a legal conclusion requires sometimes not positive but only reasonable proof, based on the evidence in the record.

The author's discussion of accident neurosis is new and interesting. Kessler's suggested theory of neurosis is called the theory of consistency. He explains this as follows. If an individual receives a severe injury which is predicable on the basis of his organized system of values, ideas and concepts, he does not develop a neurosis because there is no inconsistency. If he is uninjured, or only slightly injured in a potentially severe accident, the results are contrary to all expectation on the basis of his system of values built up out of years of experience and contact in the physical world. Since he is not severely injured he feels uncertain and insecure about the future. The symptoms of the anxiety state are an expression of a tension, the expenditure of energy which the personality is utilizing in order to unify itself and achieve logical balance.

What is a proper basis for evaluating permanent disability? In the reviewer's opinion, no one knows. Theoretically, permanent disability awards are based on "loss of earning capacity," but as pointed out by the Special Committee of the International Association of Industrial Accident Boards and Commissions, to which was assigned the task of devising a standard permanent disability rating schedule, no statistics have ever been accumulated to show what is the loss of earning capacity resulting from various types of injuries, nor the effect of certain other factors on reduced earning capacity such as age, occupation, experience, training, mentality, willingness to try, labor demand, employment opportunities, the economic cycle, etc. In any event, disability ratings must be based on average incapacity. The same type of injury will produce greatly differing results in future earning capacity in different persons.

Since the law does not provide specifically for permanent partial disability, the burden of evaluation falls heavily on the medical profession. But the doctor is not necessarily the best authority to evaluate the percentage of disability. This is especially true when he is the attending physician, anxious to show the good results of his treatment, or if he is a witness for either side, or even if he does much industrial work for employers and insurance carriers. If he is exclusively the medical arbitrator for the Commission, as Dr. Kessler, his opinion is more reliable, and his conclusions will be based on uniform methods and precedents established in previously adjudicated cases. His wide experience over a large and varied number of disabilities gives him a much broader and more impartial viewpoint than is possible for the medical witnesses of the contending parties.

Highly specialized knowledge is often necessary to distinguish pathologic complications of certain parts of the anatomy. "Unfortunately there are physicians who willingly go on record, under oath, as to their viewpoint on some injury involving a technical and authoritative understanding for which they have received no special training." (McBride, in *Disability Evaluation.*) And what is more technical and specialized than the attempt to evaluate properly the loss of earning capacity consequent upon varying and widely different types of disability?

Any method, to stand up in a court of law under legal attack, must be reasonable. Rating should be comparable in similar cases. Otherwise there is a charge of discrimination. The legislative intent is shown by the schedules: similar disabilities shall receive like amounts in weeks of disability payment. Ratings based on judgment alone should follow this intent of the law makers.

The estimating of the extent of personal incapacity in terms of "mathematical preciseness" is an actuarial and legal problem as well as medical. Commissioner George A. Kingston of Ontario believes that "No one ought to be better fitted to provide a correct rating schedule than members of compensation boards and their technical assistants, who are studying the subject day in and day out." (*Proceedings*, IAIABAC, 1921.) The reviewer suggests that the scope of the existing schedules be greatly enlarged, either by legislation or by giving the commissions authority to adopt supplemental schedules in consonance and agreement with existing schedules, or by the adoption as commission rules of practice and procedure of such supplemental schedules as are desirable, based on experience, precedent and judgment; and that the final determination of the disability ratings be made by the commission itself though a specially trained and technically qualified department of its own. This department should include legal and actuarial technicians and be in close relations with the commission's medical director or advisor. This will counteract the subjective and perhaps not entirely unbiased estimates of the medical witnesses of the litigating parties.

R. E. Haggard.

Economics oj Social Security. Seymour Edwin Harris. McGraw-Hill Book Company, New York, 1941. Pp. xxvi, 455.

This study by an associate professor of economics of Harvard University is primarily concerned with the long-run influence of the social security program on the volume and fluctuation of output and employment. In order to provide an adequate background for analysis of such economic factors, the author devotes considerable attention to other aspects of the program, including the development of the original legislation in 1935, the evolution of the old-age reserve plan, the abandonment of the reserve principle and other important changes effected by the 1939 amendments, the political influence of the Townsendites and the relationship of the social security program as a whole to other programs of the New Deal. As a result of this broad treatment of the subject, Professor Harris' book should be of interest to general students of social security as well as to specialists in economics.

The book as a whole is divided into three interrelated parts which deal respectively with (1) the relation of the security program to output, (2) the problem of reserves and finances and (3) the incidence and effects of payroll taxes. In Part I an exhaustive examination is made of the deflationary aspects of the social security program, both under the present taxing and financial provisions and under various alternatives to these provisions. Among the questions considered in this connection is the effect of consumption taxes, such as the present payroll taxes, on savings and investment, and the extent to which disbursement of benefits in periods of need contributes toward a net rise of consumption. The conclusions here depend in large measure on assumptions as to the state of employment. Under conditions of full employment there is much to be said for consumption taxes, since a reduction of consumption will induce a corresponding rise in investment. Furthermore, in extraordinary situations, such as the present defense effort, heavy consumption taxes may provide the only means of dealing effectively with inflationary forces.

Under conditions of less than full employment, the net effect on investment of payroll taxes in excess of benefit disbursements is not clear, although the savings-investment pattern of recent years lends some support to those who are critical of consumption taxes and accumulation of reserves. Authority seems to accept the view that the social security program of 1935 had a net deflationary effect and the charge has frequently been made that this program contributed greatly to the premature downturn in 1936-1938. In considering such charges, however, it is necessary to put in their proper perspective numerous other factors; for example, the accumulations of other governmental agencies; the large rise of tax receipts accompanying the recovery; the excessive rise of wages, prices and inventories and the failure of investment to rise to the level of the twenties. Each of these factors, as well as the social security program, doubtless contributed to the economic recession.

After detailed analysis of the effect of a social security program on demand, prices, savings and output the author concludes that the final effects will depend on whether a large reserve plan, a small reserve plan or a policy of borrow-as-you-go is instituted, and will also depend on whether the tax burden is to be largely on payrolls and direct consumption or on surpluses. Other pertinent considerations are the degree of employment of the factors of production and the extent of their mobility. The greater their mobility and the lower the level of employment, the less serious are the effects on prices likely to be when demand is artificially increased through operation of the social security program. It appears, however, under the conditions prevailing in the late thirties, that the effect on output and employment of the social security program as then in operation was on the whole unfavorable.

In the matter of the investment of social security funds Professor Harris considers three alternative methods: (1) the deposit of security funds with banks, (2) the management of such funds by the authorities of the Federal Reserve System in the capacity of agents and (3) the investment of the funds in government securities, the method required under the Social Security Act. After discussing the advantages and disadvantages of each of these methods, the author concludes that "On the whole, the actual system in operation seems to be the most acceptable one."

Part II consists mainly of a thoroughgoing discussion of the reserve plan as applied to contributory old-age insurance. It reviews the evolution of the reserve plan, summarizes the principal arguments for and against reserves which developed in the subsequent lively controversy on this issue, calls attention to the complete turnabout of the Treasury in this matter and appraises the long-time adequacy and probable effects of the modified reserve program adopted in 1939. The author does not take a definite stand on the reserve question but it would appear from the general tenor of his discussion that he feels that the original reserve plan should have been retained, primarily because the management of large reserves would have provided government authorities with a powerful weapon for the control of money and investment markets. Moreover, he feels that the 1939 rout of the advocates of full-reserve financing was accomplished in part at least by fallacious arguments, and he takes issue particularly with the frequent contention that interest savings under the reserve plan would not be real. He concludes, however, with reference to the 1939 amendments, which included repudiation of the reserve principle, that "On the whole, these changes are to be welcomed if for no other reason than that the program will now be much more popular throughout the country."

The actuarial problems involved in estimating social security costs are dealt with in a separate chapter and considerable attention is devoted to what are termed errors and oversights in the original estimates, the most serious being failure to include sufficient allowance for the in-and-out movement of the covered group. This is hardly to be classified as an "error or oversight," however, since it was stated in connection with the original estimates that no basis then existed for measuring the effect of the in-an-out movement on pension costs, and that only as experience under the plan accumulated would the data necessary for such measurement gradually be made available. A second shortcoming attributed to the original estimates was the failure to make sufficient allowance for improved longevity in future years. This criticism may ultimately prove to be valid, but it is well to keep in mind that the lower mortality rates underlying later estimates of cost are based largely on expected improvements, and that the actual mortality rates to be experienced by the insured population 50 years hence still constitute an unknown factor in future pension costs.

In the chapter entitled *Theory of Reserves* an attempt is made to define such concepts as actuarial soundness and the reserve system of financing. Unfortunately, the definitions given do not help much to dispel the confusion which frequently surrounded the use of these terms in the recent reserve controversy. For example, in answer to the question, "What is the reserve system of financing?", the author states simply that "it proposes to make the value of current assets equal to the present value of accrued liabilities, tax receipts being supplemented with earnings from reserves." But what are "accrued liabilities" in the case of a plan under which Congress reserves at all times "the right to alter, amend or repeal any provision of this Act"? Presumably, the author subscribes to the theory of certain advocates of reserve financing who hold that the accrued liabilities under the plan are determined by a level premium method of cost distribution but this position is not substantiated on either actuarial or accounting grounds. For the most part, however, the discussion of reserves and finances is stimulating and the bringing together of the viewpoints of various authorities on these questions adds to the general interest and value of this section.

In Part III, entitled *Incidence and Effects of Payroll Taxes,* the latest and heaviest guns of economic analysis are brought to bear on this important aspect of the social security program. In addition to examination of the problem in the light of the classical theory of incidence of payroll taxes (the marginal productivity theory), recourse is had also to the general wage theory and to the theory of monopolistic competition. This section also includes a review of the controversial issue of merit or experience rating in connection with unemployment compensation.

In summarizing the discussion of incidence, the author concludes that the more or less accepted theory that labor ultimately pays the cost either through a reduction of money wages or of employment is subject to important reservations. A substantial part of the burden falls elsewhere. A rise in the cost of labor may be accompanied by a rise of prices, by an increase of monetary supplies and monetary demand and therefore by favorable effects on marginal productivity. Social security costs may thus be absorbed, employment and wages rates to that extent not suffering. Furthermore, the theory of monopolistic competition with its concentration on imperfect elasticity of supply of and demand for commodities also suggests the possibility that part of the burden will be placed on the consumer and factors of production other than labor.

This book represents an important addition to the rapidly growing literature on the subject of social security.

OTTO C. RICHTER.

Formulation of a Federal Invalidity Insurance Program. Frank Lewand. Privately printed, Washington, D. C., 1940. Pp. xi, 98.

The author advocates the establishment of a federal program to provide benefits for workers who become totally and permanently disabled. Coverage is to be the same as under the old-age and survivors insurance section of the Social Security Act and the program is to be administered by the Social Security Board. Contributions are to be divided among employees, employers and the government. The amount of the cash benefit is to be calculated by the same formula as the old-age insurance primary benefit.

The treatment is uncritical and rather superficial and thus is of benefit mainly to those with no previous acquaintance with invalidity insurance programs. The conclusions would appear more or less obvious to actuaries—perhaps a little too obvious to be very good.

One of the more difficult problems in the administration of a federal invalidity program is the medical examination of claimants. It is only to be expected that the local medical practitioner will tend to state his findings in terms that are the most favorable to the claimant. In the larger centers where it is practical to maintain a salaried examiner this tendency can be avoided to a certain extent but even there it may be necessary to qualify the examiner's findings by reports from the claimant's own physician. The author discusses this problem briefly and with considerable tact.

J. B. GLENN.

Life Insurance and the Democratic State. M. Albert Linton. University of California Press, Berkeley and Los Angeles, 1941. Pp. 50.

In this Barbara Weinstock lecture on the morals of trade Mr. Linton questions vigorously the wisdom of centralization and federal authority. He fears the loss of checks and balances which have functioned throughout the era of state supervision. In discussing the report prepared by staff members within the Securities and Exchange Commission for the Temporary National

Economic Committee he suggests certain difficulties facing the investigators of a long-established business when that business has developed certain technical terminology with which the investigators fail to become familiar. He refers feelingly to "half truths, biased information, incorrect data, and the omission of facts which if introduced would have led to altogether different conclusions." He disagrees in short with the conclusions submitted by the staff members in respect to investments, lapses, competition and cooperative conferences, and a mature economy. Mr. Linton may be somewhat uncharitable in failing to recognize explicitly the inherent difficulties following from low-salaried staff members and definite deadlines for publication. The very publication of this small book may indicate that our democratic processes are still at work and that such lectures constitute one of the checks tending to slow down premature extension on the part of the federal government over another area of activity.

WILLIAM R. WILLIAMSON.

A Mathematician's Apology. G. H. Hardy. The University Press, Cambridge; The Macmillan Company, New York, 1941. Pp. vii, 93.

This is a thoroughly enjoyable, all too short essay by an Oxford don who looks back over his life as a professional mathematician and finds it satisfying.

Justification of any man's activities is complete, Professor Hardy holds, if he can state without absurdity that "I do what I do because it is the one and only thing that I can do at all well." Most people of course can do nothing at all well. A substantial minority, perhaps 5 or even 10 per cent, can do something rather well. It is a tiny minority who can do anything really well and the number of men who can do two things well is negligible. Accordingly, if a man has any genuine talent, no defense of cultivating it to the full is needed. And this applies not only to mathematicians but to mountain climbers, ventriloquists and blindfold chess-players.

But granted the ability, is it really worth while to make a serious study of mathematics? Professor Hardy leaves no doubt as to the answer to this question. If intellectual curiosity, professional pride and a proper spirit of ambition are legitimate incentives in choosing a career, then assuredly no one has a fairer chance of achieving them than a mathematician. His subject is the most curious of all, it provides unrivalled openings for the display of sheer professional skill, and mathematical achievement, whatever its intrinsic worth, is the most enduring of all. The abstract beauty of mathematics, its aesthetic appeal and intellectual "kick," are effectively illustrated by two of the famous theorems of Greek mathematics: Euclid's proof of the existence of an infinity of prime numbers and Pythagoras' proof of the irrationality of $\sqrt{2}$. The permanence, yet eternal freshness, of mathematical ideas is shown by the fact that the emotional satisfaction derived from proving these theorems is as great today as it was two thousand years ago and will not be diminished thousands of years hence. These theorems are also used to distinguish "serious" mathematics (characterized by generality and depth) from the "trivial" mathematics of such writers as Whitehead and Hogben.

As to the utility of mathematics the author concedes that a good deal of elementary mathematics has considerable practical usefulness but in his opinion "these parts of mathematics are on the whole rather dull; they are just the parts that have the least aesthetic appeal." The real mathematics of real mathematicians is almost wholly useless and it is not possible to justify the life of any genuine professional mathematician on the ground of the utility of his work. On the other hand, if not useful in the crude sense, pure mathematics is at least innocent and harmless and this is more than can be said for many other sciences, particularly as to their application in time of war. Mathematicians may rejoice therefore that there is one science at any rate, and that their own, whose very remoteness from ordinary human activities should keep it gentle and clean.

The case for Professor Hardy's life is that he has added something to knowledge and helped others to add more; and that these somethings have a value that differs in degree only, and not in kind, from that of the creations of the great mathematicians or of other artists, great or small, who have left some kind of memorial behind them. It is a good case.

Otto C. Richter.

A Penn Yan Boy—An Autobiography. Edson S. Lott. Montross and Clarke Company, Inc., New York, 1941. Pp. 259.

Although the title of this book might indicate that it contains only the story of one man's life, the author has included brief accounts of the careers of 19 other men:

Samuel Appleton, U. S. Manager and Attorney, The Employers' Liability Assurance Company, Ltd.

Kimball C. Atwood, President, The Preferred Accident Insurance Company of New York.

James G. Batterson, President, The Travelers Insurance Company.

John R. Bland, President, U. S. Fidelity and Guarantee Company.

William Brosmith, Vice-President and General Counsel, The Travelers Insurance Company.

Morgan G. Bulkeley, President, Aetna Life Insurance Company.

F. Highlands Burns, President, Maryland Casualty Company.

Louis F. Butler, President, The Travelers Insurance Company.

Sylvester C. Dunham, President, The Travelers Insurance Company.

Christopher P. Ellerbe, President, Union Casualty and Surety Company.

George M. Endicott, U. S. Manager and Attorney, The Employers' Liability Assurance Company, Ltd.

Theodore E. Gaty, Vice-President, The Fidelity and Casualty Company of New York.

Oscar Ising, U. S. Manager, The Ocean Accident and Guarantee Corporation, Ltd.

Arthur W. Masters, U. S. Manager, London Guarantee and Accident Company, Ltd.

William C. Maybury, Managing Director, Standard Accident Insurance Company.

William F. Moore, President, New Amsterdam Casualty Company.

George F. Seward, President, The Fidelity and Casualty Company.

John T. Stone, President, Maryland Casualty Company.

John H. Thom, Vice-President, Standard Accident Insurance Company.

The result of this treatment is that we are permitted to take a quick glance at a number of the pioneers of casualty insurance. The list is by no means complete; the attitude of the author is tolerant, if not affectionate, rather than critical; the accent is placed on personal characteristics and routine business accomplishments and no attempt is made to appraise the contributions of the individual to the fundamental structure of casualty insurance—nevertheless the reader cannot fail to be impressed with the personalities of these men who blazed the trail along which our business has progressed by leaps and bounds in the short space of half a century.

These men compare favorably with those who founded other great business enterprises in this country. They had the same vision, the same courage, the same ingenuity, the same persistence, the same capacity for producing results. Most of them came from humble surroundings, most of them were self-educated, most of them seem to have discovered the insurance business by accident; but each in his own peculiar way had "what it takes" and the companies which they originated and nurtured through those early days of trial and error still stand solidly as monuments to their workmanship and perseverence. Each was highly individualistic in his business philosophy and it is interesting to speculate what might happen if they should suddenly re-appear on the current scene and face today's problems of state and federal supervision, cooperation, competition, rating, legislation and taxation. Perhaps they would supply a leadership which is sorely needed today.

As for Uncle Edson's autobiography, that is as might have been expected "a joy forever." His story is interesting and he tells it with obvious personal satisfaction and with that pleasant humor which is one of his greatest assets. He is a Penn Yan boy who made good with a vengeance and one can detect in the modest account of his origin, his family life and his early experience, the factors which later accounted for his success in the business world. He occupies the unique position of a pioneer who still pulls an oar in active service and who therefore has seen the fruition of all the earlier activities in which he had such a prominent part.

G. F. MICHELBACHER.

Reinsurance—Its Practice and Principles. E. M. Sturhahn. Privately published, Hartford, 1941. Pp. 249.

This book deals with a subject on which there is available in published form only a limited amount of information. A few of the insurance texts devote a single chapter to reinsurance. There are papers in the *Proceedings* dealing with particular phases of reinsurance, for example, *Notes on the Origin and Development of Reinsurance* by Mr. E. W. Kopf (Vol. XVI, pp. 22-92), which traced the historical development of reinsurance in various countries and *The Position of the Reinsurance Company in the Casualty Business* by Mr. W. W. Greene (Vol. XIV, pp. 36-63). From time to time articles on reinsurance have appeared in the insurance press and lectures on reinsurance in one or another of the Insurance Institutes have been published in pamphlet form. Thus the literature available to those requiring comparatively detailed information is decidedly scattered and unorganized, and Mr. Sturhahn's work should prove extremely useful.

Proceeding from a brief history of reinsurance, Mr. Sturhahn enumerates the reasons for reinsuring and the principal forms of reinsurance. Following a chapter on the operations and mechanics of facultative reinsurance are chapters devoted to each of the various types of treaty reinsurance in which reinsurance principles and practices and the provisions of the treaties are thoroughly discussed. An Appendix containing 16 specimen reinsurance agreements is a particularly helpful feature. Other chapters deal with such varied topics as the value of reinsurance to the agent, state or national reinsurance, reinsurance company investments and reinsurance-company versus direct-company results, to give only a partial list.

It can be seen that the book covers its field comprehensively. Unfortunately, although not indicated by the title of the book, its field is confined to reinsurance of fire and allied lines, with a chapter on marine reinsurance. Casualty reinsurance principles and practices differ considerably. To one with a working knowledge of casualty reinsurance practices and able to recognize the differences in practice between the fire and casualty fields the book is useful but the student seeking a first acquaintance with casualty reinsurance would be considerably misled.

While the author's references are a bit obscure in a few spots, his meaning is generally clear and he writes interestingly and with plenty of illustrations to bring out his points.

HOWARD G. CRANE.

The Second Yearbook of Research and Statistical Methodology. Oscar K. Buros, Editor. The Gryphon Press, Highland Park, N. J., 1941. Pp. xxii, 383.

This is a collection of book reviews of research and statistical methodology books which have appeared in about 300 different journals during 1939 and 1940. For the convenience of those who use the book it might be stated that presumably date of publication *of the review,* rather than the date of publication of the book, determines its inclusion or exclusion.

In the *Proceedings* for May 1939, I reviewed the first *Yearbook* of this series. This second volume, it would appear from a cursory sampling process, obviates one of the criticisms expressed there by devoting about three times as much space to one-fifth as long a period of time. As a result this volume is much more inclusive than the first *Yearbook* and appears to cover most of the statistical and related mathematical books which one would expect to find. Mr. Buros's selection comprehends all of the appropriate periodicals listed in the *Book Review Digest* and also about 240 others including many foreign publications.

From the nature of the task and the objectives the editor must take the reviews as they are written, and is not to be blamed for the fact that reviews of the same book often reach conclusions so contradictory that a satisfactory estimate of the book from reading the reviews is difficult. How generally this is true could only be appraised by laboriously reading and comparing a considerable number of reviews, which I have not done. My examination was not sufficient basis for a generalization but it indicated some qualification of the editor's conclusion that prospective users will be able to "select textbooks with greater discrimination." As the reader will judge, I do not put too much faith in reviews, not even this one.

This volume of reviews is well printed, conveniently arranged, adequately indexed, and as far as I can see is a judicious selection of pertinent comments on a comprehensive list of books in the fields covered. "Research and methodology" covers much territory and in some of the fields I am too ignorant to be a judge. The Preface expresses the objectives of the book: to "(1) make students more keenly aware of the inadequacy of much of what is now presented in textbooks and classes, (2) help . . . to select textbooks with greater discrimination, (3) point out the weak and strong points of particular books, (4) assist . . . in keeping abreast of modern development, (5) encourage research workers to . . . examine methodology books intended for workers in other fields, (6) emphasize differences of opinion . . . in appraisal of a particular book, (7) indicate the vast extension of fields in which statistical techniques are being found useful . . . (8) discourage stereotyped textbooks written by persons ignorant of modern developments in statistical theory, (9) make available important statements . . . of considerable value . . . apart from the book under review, (10) improve the quality of reviews." I do not think reviews are such a potent influence as the editor does but probably this *Year Book* will contribute to purposes (4) to (10) inclusive.

ROBERT RIEGEL.

Slightly Perfect. George Malcolm-Smith. Random House, New York, 1941. Pp. 324.

Objectively we know our fellow actuaries and their activities! Whenever an actuary delves into the intricacies of the insurance business it's news for the Casualty Actuarial Society; however, we have never before had the chance of reviewing ourselves subjectively. An opportunity presents itself in the newly published book of fiction, *Slightly Perfect,* by Mr. Malcolm-Smith.

The book reveals an ingenious plot, is well written, and even forgetting our personal curiosity will hold our attention and interest throughout. It seems that one Milton Haskins, a life actuary for the Nutmeg Insurance Company has, for the first time in his career, made a devious error. He has moved his decimal point over one degree too far to starboard so that the cash value of a twenty-payment life insurance policy becomes $954.00 in its sixth year instead of $95.40.

Haskins' orderly clock-work soul is so revolted by the irregularity of this error that he walks out of the Nutmeg Insurance Company and becomes embroiled in a mild beer escapade with one McGoldrick of the Acres of Fun Carnival. Milton Haskins becomes Miltie Higgins, a jack-of-all-trades with the Acres of Fun Carnival, who cinches the job by a combination of his mathematically inquiring mind and his farsightedness in letting the carnival manager beat him at chess. Miltie is naive and unworldly but his mathematical genius and super-statistical knowledge bring him successfully through a carnival poker game and allow him to cope with motherly Peep, the bird woman. Some other instinctive, actuarial characteristic protects him from the aggressive wiles of Bunny LaFleur (Effie Glotzer), the chief anatomical attraction of Jungletown Frolics.

The book is not without its plot. Bunny LaFleur and Bogel, the cashier, are the actual owners of the Carnival. Years before, Bogel, alias Vogelmann, had been the prosperous owner of the Vogelmann Calf Weaner Corporation of Kansas. A wife whose avoirdupois had expanded in inverse proportion to her postnuptial good nature had made life so miserable for Vogelmann that he and Bunny had eloped from a convention in Chicago to join the Carnival. Of course, there must be, and is, an insurance angle. Vogelmann was insured for $65,000 of life insurance and the Nutmeg Insurance Company was just about to pay Mrs. Vogelmann when Miltie, by a stroke of good luck and actuarial genius, uncovers the fact that Bogel is really Vogelmann.

The story ends, as it should, on a happy note. Haskins' starry-eyed secretary discovers that even an actuary becomes fonder in retrospect and induces the hard-boiled, business-like Chief Actuary to let her hunt Haskins. In the end Haskins and his secretary are slated for actuarial collation, Bogel and Bunny are not prosecuted, and the real villain, the stupendous Mrs. Vogelmann, is trapped in the Carnival House of Terror and Fun.

Haskins is evidently 100 per cent a life actuary. What significance the book has for casualty actuaries is not certain. The casualty actuary may be steeped in all kinds of figures but we somehow or other cannot see him too contrite over a mere decimal point. Whether casualty actuaries are as unfamiliar with poker and as unable to enjoy a gin fizz without analyzing the percentage of alcoholic content and the coefficient of intoxication, is not for this reviewer to determine. Perhaps the book really is a confession of the thirst for worldly knowledge on the part of the life insurance actuary.

Seriously the book is really a good one, worth reading. It should be the beginning of a popular fictional career for George Malcolm-Smith.

ARMAND SOMMER.

Theory and Practice of Accident and Health Insurance. Stewart M. LaMont. The Spectator Company, Philadelphia, 1941. Pp. xv, 235.

Stewart LaMont is one of the outstanding authorities in the accident and health business and his book, *Theory and Practice of Accident and Health Insurance,* is just what the reader would expect. It combines a study of the technical aspects of the accident and health contract, including legal decisions, with an unusual clarity of expression. Mr. LaMont's subject matter is a peculiarly difficult one in that conflicting decisions on most of the controversial claim issues are not susceptible of a definite answer of "covered" or "not covered."

This variety and indecision of court decisions places Mr. LaMont in an unfortunate position when he discusses whether a certain type of claim may or may not be legally payable. Due to the multitudinous tangents of the courts he cannot offer a set of standard conditions under which the decision is favorable or unfavorable to the insurance company. The result makes his book much more a source for reference than one to digest and discard.

Every student of the accident and health business and everyone active in its administration or sales should have this book as a ready guide. Not even the most experienced of the accident and health fraternity can read the book once and absorb the entire subject matter; in fact, the one lesson that can be learned from the treatise is that all of us in the accident and health business have definite limitations in the interpretation of a hypothetical claim question. Too much depends on the precise conditions of the issue at stake, on the locality in which the action occurred, and perhaps on what the court had for breakfast on the morning of the latest decision.

It is perhaps somewhat regrettable that Mr. LaMont did not write a longer and more inclusive book. His philosophizing on generalities, as in the passage starting on page 55, shows what he could have done had he increased the scope of his book. He has handled a technical subject and, we must admit, one somewhat dry, in the most interesting and readable manner. For example, his descriptions of the "career of the voluntary exposure condition" is so fascinatingly written that you forget that you are delving into court archives.

If the reader of this book will consider it as a corollary to Mr. LaMont's paper, *The Contract of Personal Accident and Health Insurance,* published in Volume XVIII of the *Proceedings,* he will have the most complete technical survey of accident and health ever published. We would suggest that everyone who can possibly secure a copy of Mr. LaMont's paper combine this with *Theory and Practice of Accident and Health Insurance.* Perhaps some day the publishers can arrange to reprint the paper as a preface or appendix to the book. The accident and health profession would then have a new and complete text on the contract and its interpretation.

ARMAND SOMMER.

Traffic Accidents and Congestion. Maxwell Halsey. John Wiley & Sons, Inc., New York, 1941. Pp. 342.

The aim of this book is to present a brief but complete picture of the basic elements in the problem of accidents and congestion. It is not intended as a handbook for engineers whose work is basically in the structural phases of highway engineering. It is rather a non-technical discussion of the traffic problem and an attempt to improve public understanding of this problem.

The book is divided into 5 major parts. First, the establishment of the foundation of the problem; second, the governmental structure required to improve transportation; third, the adjustment of engineering to fit human nature; fourth, detailed description of processes and methods for improving the movement of motor vehicles, and fifth, suggested procedures for analyzing and measuring the effectiveness of current programs and plans for improvement.

The book is intensely interesting and is written in a manner which makes for enjoyable reading and study. A summary of each basic point is first presented followed by a detailed explanation and illustration with a summary bringing out the application of such basic point to the general problem as a whole.

Some of the principles set forth in the book are unquestionably controversial but the author has presented a sound case for each principle and fairly leaves the evaluation of the principle to the reader. To anyone wanting a broad discussion of traffic accidents and traffic movement in readable form not burdened with highly technical engineering knowledge, here is a book highly worth-while.

W. J. Constable.

Traffic Engineering Handbook. Harold F. Hammond and Leslie J. Sorenson, Editors. Institute of Traffic Engineers and National Conservation Bureau, New York, 1941. Pp. 278.

This *Handbook* is probably the first of its kind to be made available in such convenient form for the literature available up to now has been almost entirely in the form of pamphlets or articles in various engineering journals. The *Handbook* is primarily designed for engineers who are confronted by technical problems of traffic or transportation. The purpose of the book as outlined in the preface is "to collate in one volume basic traffic engineering data as a guide to best practice in those portions of the field in which well-accepted principles have been established."

The *Handbook* covers the entire field of traffic, beginning with chapters on the motor vehicle and the national laws of motion particularly as these laws apply to vehicle motion, and carries through such subjects as traffic surveys, pavement markings, traffic signs and signals and the elements of roadway design and lighting.

While not intended for the layman, this *Handbook* has been so written that it makes an interesting study to those who have only a superficial knowledge of engineering but who are interested in traffic from other than the purely engineering viewpoint.

Certainly the Safety Engineering Department of every insurance company, which although not responsible for the design and construction of highways is vitally interested in the operation of vehicles over highways, should have a copy of the *Handbook* available for reference at all times.

Charts and tables as well as problems scattered throughout the *Handbook* clearly indicate the basic formulae underlying the conclusions drawn and demonstrate the use to which basic facts and conclusions can be put. It is a book that should be in the hands of every engineer who is concerned in any way with traffic or transportation.

W. J. CONSTABLE-

PUBLICATIONS RECEIVED

Industrial Accident Prevention. 2nd edit. H. W. Heinrich. McGraw-Hill Book Company, New York and London, 1941.

Man and The Motor Car. Revised edition. Albert W. Whitney. National Conservation Bureau, New York, 1941.

Public Liability Hazards. Reginald V. Spell. The Rough Notes Company, Indianapolis, 1941.

Safety Supervision. Vernon G. Schaeffer. McGraw-Hill Book Company, 1941.

Traffic Survey Manual. National Conservation Bureau, New York, 1941.

Reviews of the following publications appear in the current volumes of the *Transactions* of the Actuarial Society and the *Record* of the American Institute of Actuaries.

Supplement to Blood Pressure Study. Compiled and published by the Actuarial Society of America and the Association of Life Insurance Medical Directors. New York, 1941. Pp. 22.

CURRENT NOTES

General

Casualty Experience Exhibit

A number of changes have been made in the New York Casualty Experience Exhibit blank for 1941. Most of the changes are corrections and revisions of the physical set-up but some are of sufficient importance to be noted.

In Part 1 an additional line 41A has been inserted before the summary lines at the bottom of the page to which will be carried down in even dollars the earned premiums shown on line 4 in order to facilitate comparison with the other summary items.

Footnote (h) in Part 1 which is at the bottom of page 3 has been greatly extended and has been shifted to the bottom of page 4. The 1940 footnote read as follows:

(h) Enter herein the differences between liability, compensation and credit losses incurred as reported at line 10, columns 4, 5, 6 and 16 of this Exhibit and as determined on the basis of reserves reported as liabilities in the annual statements of the previous year and the current year as follows:

	Liability	Compensation	Credit
Dec. 31, previous year	$..............	$..............	$..............
Dec. 31, current year..	....	....	....
Increase or Decrease	$..............	$..............	$..............

The extended footnote is reproduced in full on page 238.

In Part 2 the wording and arrangement of lines 1 to 4 have been revised. The 1940 lines read as follows:

1. Premiums less return premiums on direct business.
2. Premiums less return premiums on reinsurance assumed.
3. Premiums less return premiums on reinsurance ceded.
4. Net Premiums written (1 + 2 — 3) to agree with line 1, Part 1.

The new wording reads:

1. Net premiums written, column 5, page 2.
2. Add reinsurance ceded per column 3, page 2.
3. Deduct net premiums on reinsurance assumed.
4. Premiums less return premiums on direct business.

(h) ADJUSTMENT ITEM—(Reconciliation of line 40, Part I)

PREVIOUS YEAR	Auto Liability	Liability Other Than Auto	Total Liability	Compensation	Credit
A. Loss and loss adjustment expense reserves included in items 11 and 16, page 8 of Annual Statement of previous year.					
B. Loss and loss adjustment expense reserves reported at lines 7 and 13, Part 1, of Casualty Experience Exhibit of previous year.					
C. Difference (*A* — *B*)					
CURRENT YEAR					
D. Loss and loss adjustment expense reserves included in items 11 and 16, page 8 of Annual Statement of current year.					
E. Loss and loss adjustment expense reserves reported at lines 7 and 13, Part 1, of Casualty Experience Exhibit of current year.					
F. Difference (*D* — *E*)					
G. Adjustment (*C* — *F*) (To be entered at line 40, Part 1, of this exhibit.)					

A new line has been inserted between present lines 15 and 16, Part 2, to read as follows:

"16. Ratio of other acquisition and field supervision expenses incurred to net direct written premiums . . . 13 ÷ 4."

A footnote to Part 2 has been inserted, reading as follows:

"In 1942 a supplement to Part 2 will call for commissions incurred on direct business in the State of New York with ratios to net direct premiums written."

A complete revision of Part 3, Loss Ratio Experience on New York State Risks, has been made so that this part will only require data for the current calendar year. At present the data for the latest five years separately is required.

In Part 4 the reference (d) has been inserted at lines 8 and 15 (Premiums Written) in the 1941 column, in addition to the reference already made at lines 9 and 16. Footnote (d) reads, "If any premiums on policies effective in 1942 are included herein state amount thereof $..........................."

Throughout the exhibit the words "Plate Glass" and "Steam Boiler" were changed to "Glass" and "Boiler" respectively.

Automobile

Policy Revision

A revision of the standard provisions for Automobile Liability policies was made effective on October 20, 1941. Among the more important changes were the following:

1. Automobile medical payments insurance was included as an optional cover (heretofore available as an endorsement), and the exclusion applicable to injuries sustained by persons being carried for a charge was eliminated.

2. Coverage for the use of trailers was again broadened.

3. Coverage for the use of other private passenger automobiles was broadened to cover the presence of a chauffeur or servants in the automobile.

4. Temporary use of substituted automobiles is covered as excess insurance.

5. Automatic insurance for newly acquired automobiles was extended from ten to thirty days.
6. The exclusion of coverage while the automobile is being used for carrying persons for a charge was eliminated.
7. The age exclusion was eliminated.
8. Assault and battery is deemed an accident unless committed by or at insured's direction.
9. The legal representative is covered for sixty rather than thirty days after death or bankruptcy of the insured.

Rate Changes

A revision of rates for automobile bodily injury and property damage liability affecting the great majority of the states took effect on January 12, 1942. The effect of the rate revision was generally upward with most of the increases being in the rates for property damage liability insurance, where the experience has been especially unfavorable due principally to the increase in accidents and the rising cost of labor and materials.

New York Assigned Risk Plan

A voluntary assigned risk plan has been approved for New York applicable to all classes of automobile risks unable to obtain automobile bodily injury and property damage insurance for themselves and not specifically excluded by the New York Financial Responsibility Act. The plan is similar to those already in effect in Maine, New Hampshire, Vermont, Connecticut, New Jersey, Virginia, Illinois and Washington. All carriers writing the types of risks subject to the Financial Responsibility Act are subscribers, each carrier being assigned risks in proportion to its automobile bodily injury premium writings.

Workmen's Compensation

Legislation

Legislation was enacted in a number of states during 1941 increasing the level of Compensation benefits. The following table shows the estimated effect of these increases on Compensation insurance costs exclusive of occupational diseases:

State	Estimated Increase	State	Estimated Increase
Connecticut	2.0%	Massachusetts ..	2.2%
Delaware	25.0%	New Hampshire .	2.2%
Florida	3.8%	New York	1.1%
Hawaii	0.2%	Rhode Island	5.5%
Illinois	0.7%	Tennessee	18.3%
Maryland	3.8%	Vermont	0.5%

In addition to the foregoing increased compensation costs the Oklahoma state premium tax was increased from 2.0% to 4.0% and the Texas tax rate was increased from 3.25% to 4.05%. All of the above amendments are reflected in the current compensation rates except the tax increase in Texas where a proposed rate revision incorporating the new tax provisions is pending at the time of the writing of these notes.

The United States Congress enacted legislation effective August 16, 1941 providing that the Longshoremen's and Harbor Workers' Compensation Act, with certain specific amendments, shall be applicable to employees engaged in any employment at any military, air or naval base acquired by the United States from any foreign government, or any lands occupied or used by the United States for military or naval purposes in any territory or possession outside the continental United States, including Alaska, Guantanamo and the Philippine Islands, but excluding the Canal Zone, irrespective of the place where injury or death occurs.

As respects occupational disease legislation, Delaware added silicosis to the list of compensable occupational diseases; Minnesota authorized the creation of a committee to study occupational disease and to make recommendations relating thereto to the next regular legislative session; Montana provided for payments from the public funds to any person totally disabled from silicosis; Utah enacted a separate occupational disease law providing compensation for specific occupational disease including benefits for silicosis which are graduated in accordance with the duration of exposure.

On July 8, 1941 an amendment to the Indiana Workmen's Compensation Rating Law became effective whereby the section granting the Insurance Commissioner authority to approve minimum rates was changed by the substitution of the word "maximum" for the word "minimum."

Rate Revisions

Rate level changes were generally downward during 1941, reductions being put into effect in 30 states and increases in 12 states; but only 4 of the 12 increases were due to experience indications apart from the effect of law amendments.

Retrospective Rating

Retrospective rating plans for Workmen's Compensation insurance were adopted in Delaware and Pennsylvania, the Delaware plan going into effect on December 1, 1941 and the Pennsylvania plan being made effective on December 31, 1941.

The Pennsylvania plan differs from the standard plan in the following respects:

1. It is mandatory for all risks which qualify as to premium size, the qualification point being an annual premium in excess of $1,000.
2. The maximum premium is equal to the standard premium for all premium sizes.
3. Company expenses as well as production expenses are graded by size of risk.
4. The losses which enter into the determination of the retrospective premium are limited.
5. A special table is used for the valuation of indeterminate cases.

These five features are also part of the Delaware plan for risks of $5,000 and over. For premium sizes between the qualification point of $1,000 and $5,000 the Delaware plan is optional, the insured being given the choice of coming under the Retrospective Rating Plan or taking insurance on a guaranteed cost basis. The retrospective plan for premium sizes from $1,000 to $5,000 contains a surcharge feature, the maximum premiums ranging from 115% of the standard premium for a $1,000 risk to 100% of the standard premium for a $5,000 risk. The guaranteed cost premium for these premium sizes is subject to a discount of 13.4% on the portion of the premium in excess of $1,000, to reflect the saving produced by the graduation of expenses.

The total production cost allowance in both plans is 17.5% of the first $1,000 of standard premium plus 7.5% of the portion of the premium over $1,000. The provision for general administration and payroll audit expenses has been proportionately graded with due regard for the effect of the policy fee which is required in each state. Provision for these expenses is included in the first $1,000 of standard premium at the same percentage as in the manual rates in each state, with 4.1% of the standard premium being included in the portion of the premium in excess of $1,000.

Both plans differ from the standard plan in their method of valuation of losses which enter into the calculation of the retrospective rating premium. The individual losses reflected in the rating, prior to the application of the loss conversion factor, are limited to a value not greater than the average value of death and permanent total disability cases as used in the prospective experience rating procedure. Indeterminate cases (that is, open cases for which no award has been made and which cannot be assigned to loss or loss of use of members) are valued in accordance with an "Indeterminate Table" under which the reserve value increases with the elapsed time from date of accident.

The rating values for these plans differ from those in the standard plan. The basic premium ratios are naturally greater for all except the largest premium sizes because the elimination of the surcharges necessitates greater insurance charges in the basic premiums. Charges are also included in the basic premiums for the limitation of losses. At the $500,000 premium size the basic premium ratios for the two states go below those in the standard plan because of the graduation in expense. The minimum premium ratios are approximately the same as those in the standard plan.

A comparison of the rating values of the two states with the values in the standard plan for a few premium sizes follows:

Standard Premium	Basic Premium Ratios			Minimum Premium Ratios			Maximum Premium Ratios		
	Standard	Del.	Pa.	Standard	Del.	Pa.	Standard	Del.	Pa.
$ 1,000	.300	.800	1.000	.870	.850	1.000	1.950	1.150	1.000
2,000	.300	.625	.770	.820	.817	.820	1.870	1.095	1.000
5,000	.300	.520	.512	.750	.750	.750	1.750	1.000	1.000
10,000	.300	.450	.442	.700	.700	.700	1.650	1.000	1.000
20,000	.300	.439	.426	.625	.622	.622	1.450	1.000	1.000
50,000	.275	.390	.383	.550	.550	.550	1.350	1.000	1.000
100,000	.240	.310	.304	.500	.500	.500	1.280	1.000	1.000
250,000	.221	.280	.274	.500	.500	.500	1.180	1.000	1.000
500,000	.215	.190	.185	.500	.500	.500	1.000	1.000	1.000

BURGLARY

Policy Revision

Decision was made last December by most of the companies writing burglary insurance to attach a war risk exclusion clause to certain types of burglary policies written thereafter on either a new or a renewal basis. The policies affected are accounts receivable, money and securities destruction, comprehensive dishonesty, disappearance and destruction, premises all risk, messenger all risk, securities (for losses in safe deposit boxes), securities deposited with public officials, and securities on deposit with banks or trust companies for safekeeping.

The endorsement reads: "It is agreed that this company shall not be liable for loss or damage caused by war, whether declared, or not, invasion, insurrection, rebellion, hostilities, revolution, military or usurped power."

PERSONAL NOTES

Samuel N. Ain is now in the Naval Reserve.

John W. Carleton is now connected with the Liberty Mutual Insurance Company at Boston.

Harilaus E. Economidy is now associated with Hutchinson, Bonner & Burleson, Certified Public Accountants, of Dallas, Texas.

Henry Farrer is now in the New York Office of the Insurance Company of North America.

Thompson B. Graham has been advanced to the office of Fourth Vice President of the Metropolitan Life Insurance Company.

W. N. Magoun has retired from the Massachusetts Rating and Inspection Bureau.

Robert J. Myers has been advanced to Senior Actuarial Mathematician of the Social Security Board.

Walter F. Sullivan is now connected with the California State Compensation Insurance Fund.

L. Leroy Fitz is now connected with the American Mutual Liability Insurance Company of Boston.

LEGAL NOTES

BY

SAUL B. ACKERMAN

(OF THE NEW YORK BAR)

ACCIDENT INSURANCE—TRAVEL

[Miller *vs.* Washington National Insurance Company, 297 N. W., 359.]

Plaintiff was the beneficiary under a travel and pedestrian accident policy issued to George Zander. While the latter was driving a motor truck for his employer, the tire on an inner wheel of the dual rear wheels of the truck became deflated so as to prevent the further use of the truck on the intended trip until repairs could be made. In accordance with his employer's instructions, Zander had to drive to the employer's garage, and there he began to make the repairs by the removal of the outer wheel so as to be able to remove the disabled inner wheel and flat tire. While engaged in removing the outer wheel, the tire thereon exploded with such force and violence that Zander was instantly killed. Plaintiff alleged that the deflation of the tire on the inner wheel was the proximate cause of the death.

The policy provided indemnity for loss of life "resulting directly, independently and exclusively of all other causes from bodily injuries effected solely through external violent and accidental means subject to the limitations and provisions of the policy * * * By the wrecking or disablement of any automobile or truck * * * in which the insured is riding or driving, or by being accidentally thrown from such wrecked or disabled automobile, or vehicle." The words "wrecking or disablement," are defined in an endorsement on the policy as follows: "The words 'wrecking or disablement' of any automobile, elevator or conveyance, as stated in this policy, shall mean an injury which necessitates repair in order to place the conveyance in as good condition as existed before the accident." The insurance company contended that it was not liable under these provisions of the policy because at the time of the explosion of the tire, which resulted in his injury, Zander was not riding or driving in the truck; and the manner in which he suffered the injury which resulted in his death was not covered by the insuring provisions of the policy.

What are the beneficiary's rights?

The court held that if the policy had insured Zander against loss as a result of injury sustained while "operating" a motor vehicle, then the injury sustained by him while engaged in removing the tire might be deemed to be within the coverage afforded by the policy.

However, neither the word "operating" nor any similar or equivalent term was used in the provision as to coverage under the policy in the case at bar. In order to be within the coverage afforded by, the injury resulting in the loss of life must be effected "by the wrecking or disablement of any automobile, truck * * * in which the insured is riding or driving, or by being accidentally thrown from such wrecked or disabled automobile or vehicle." The language thus used in this provision was plain and unambiguous.

The insured was not so riding or driving and was not accidentally thrown from a wrecked or disabled automobile, therefore the injury and death sustained by the insured was not within the coverage afforded by the policy.

Auto Liability—Loading and Unloading

[Maryland Casualty Company *vs.* Cassetty et al., 119 F., 2d, 602.]

In July 1938 the plaintiff issued to defendant Cassetty an automobile liability policy under the terms of which plaintiff insured against and agreed to pay on behalf of the assured, all sums which the assured should become obligated to pay by reason of the liability imposed upon them by the law for damages sustained by anyone caused by accident arising out of the ownership, maintenance or use of the assured's automobile. The insurer contracted in addition to paying damages to defend on behalf of the insured any suit against them or either of them by reason of the use, operation and maintenance of the truck even though such suit was groundless, false or fraudulent.

According to the terms of the policy, the automobile covered was to be used exclusively for commercial purposes which was defined in the instrument as the transportation or delivery of goods, merchandise or other materials and uses incidental thereto in direct connection with the name assured's business or occupation, also, that use of the automobile for the purpose stated included the loading and unloading thereof. The policy stated that the assured was a coal dealer.

In December 1938 defendant Cassetty delivered a truck load of coal to a building in Nashville. The coal was dumped on the side walk and three of the defendant's employees started to shovel it into a manhole which led to the basement of the building, leaving the truck parked on the street. A traffic policeman required the driver of the truck to move it about a block away, where he parked the truck and returned and joined his co-workers in shoveling the coal into the basement.

One Mrs. Welsh stumbled over a piece of coal in the pile dumped from the truck and as a result fell to the street and was severely injured. She demanded damages for her injuries from Cassetty. He gave notice to the insurer, of the claim. Subsequently Mrs. Welsh instituted an action against defendant Cassetty who notified the company and called on it to defend.

What are the insurer's rights?

The court held that highly technical rules of construction should not be applied to a contract of liability insurance, but the whole document should be construed in the light of the subject matter with which the parties are dealing and the language thereof should be given its natural and ordinary meaning as understood in the business world.

Therefore, under this construction, the injuries sustained by Mrs. Welsh in stumbling over a piece of coal in a pile dumped on the sidewalk preparatory to being shoveled into the purchaser's basement, were proximately due to the "unloading" of the truck. The accident was covered by the policy, and the insurer was therefore liable.

Bankers Blanket Bond—Notice

[Lemay Ferry Bank *vs.* New Amsterdam Casualty Co., 149 S. W., 2d, 328.]

Plaintiff bank sued the defendant Casualty Company as surety for an alleged breach of an indemnity bond. The bond covered a period from March 22, 1930 to March 9, 1931. On the latter date, a blanket bond covering all employees of the bank was issued by the Indemnity Company of North America.

Becker was a cashier in plaintiff bank. In July, 1934 it was discovered that Becker had stolen over $20,000 and had concealed his peculations by withdrawing certain sheets from the ledgers. The thefts extended over the period from 1929 to 1934. As soon as the shortages were discovered the Indemnity Company of North America was notified, and defendant Casualty Company was also notified that irregularities had been discovered in the records. In response to that notice two representatives of the Casualty Company appeared at the bank. The president of the bank told them what had happened and offered them access to all the books of the bank. The two representatives, however, refused to look at the books.

Due to the difficulties in determining the dates on which the embezzlements took place it was not until February 1936 that it was ascertained definitely that the shortage which occurred after March 9, 1931, was $20,313.24, and the shortage between March 22, 1930 and March 9, 1931 was $8,009.54. A settlement was consummated with the Indemnity Company of North America and that company was given a full release upon the payment of $21,500, which included principal, interest and attorney's fees. On February 7, 1936 the defendant Casualty Company was notified that the shortage during the period covered by its bond was $8,009.54. Although the bank again offered to let the Casualty Company inspect its books the company never made any investigation, and the company ignored all claims made by the bank.

The Casualty Company based its defense on the theory that the bank failed to comply with the provision of the bond pertaining to notice and claim of loss. The provision reads as follows:

"1. That claim, if any, be submitted by the employer in writing, showing the items and the dates of the losses, and be delivered to the surety at its home office within three months after such discovery, and that the surety shall have two months after claim has been presented in which to verify and to make payment."

What are the bank's rights?

The court held that the purpose of the provision in the bond was to insure that the Casualty Company would be able to investigate the losses claimed. The company had ample opportunity to make an investigation and it failed to do so. As the bank gave the Casualty Company full opportunity to investigate, there was substantial compliance with the provision in the bond. The Casualty Company was not prejudiced by failure of the bank to furnish the particular dates on which the losses occurred, and the failure to furnish such dates was not material. Therefore, substantial compliance was sufficient and the bank could recover from the Casualty Company.

Compensation Insurance—Course of Employment

[Patterson et al *vs.* Courtenay Mfg. Co. et al, 14 S. E., 2d, 16.]

One Patterson and Gibbs, well diggers by trade, were engaged in deepening a well on a farm owned by defendant Courtenay Mfg. Co. The farm was rented to one Dyar for a share of the crops. Dyar's daughters, who lived with him, were employed in the mill of the Courtenay Co. While working on the well, the plaintiffs were blinded by a dynamite explosion. Plaintiffs proceeded under the Workmen's Compensation Act against the Courtenay Co.

The insurer's contention was that the evidence plainly showed that the claimants when injured were not in the course of the trade, business, profession or occupation of the employer. The character of the business of the employer as stated in the policy declaration was cotton spinning and weaving. The lower court interpreted the plaintiffs to be in the employ of the Courtenay Manufacturing Company within the provisions of the Workmen's Compensation Act upon the ground that the mill owned farm lands composed in the aggregate of some 1200 to 1400 acres, that one of these farms was rented to Mr. Dyar for a share of the crops, that the well where the accident occurred was on this farm and that three of the daughters of Mr. Dyar were employed in the cotton mill. The court assumed that the mill was under obligation to furnish houses and water to its employees, and that therefore, because of the fact that Mr. Dyar's daughters lived in the farm house and worked in the mill, the men at work in the well, were employed in the course of trade, business, profession or occupation of the cotton mill, which is the spinning and weaving of cotton cloth.

What are the rights of the carrier?

On appeal the court held that there was not a scintilla of evidence that the house was furnished to Mr. Dyar because the daughters who lived with him were employed in the mill. It was not correct to say that a cotton mill is under obligation to furnish dwelling houses to its employees. Those who furnish them charge a rental which is deducted from the wage envelope of the employee. The dwelling houses so furnished by the mill are congregated in the mill village and water and sewage facilities are supplied by regular systems. There was no evidence that all employees live in mill houses, and there was no evidence that Mr. Dyar paid rent for the house, or that his daughters paid him or the mill for occupying it. The evidence indicated that Mr. Dyar worked the farm on shares with the mill and the reasonable inference was that he occupied the house under that contract.

The court held that the well diggers were not within a workmen's compensation policy covering business operations of the mill and including therein all the operations necessary, incident or appurtenant thereto, whether conducted at the work places described or elsewhere in connection therewith, and therefore the insurer was not liable.

Elevator Liability Insurance—Employees

[Young Men's Christian Association *vs.* New York Casualty Company, 119 F., 2d, 387.]

The defendant issued a policy to plaintiff covering injury "by any person or persons not employed by the assured as the result of an accident occurring by reason of the existence, maintenance or use, of any elevator or elevating or lowering device which is described in Declaration 4, its well, shaft or hoist way or the machinery, equipment or appliances used in connection therewith and appurtenant thereto." Important exclusions in the policy were as follows: "This policy shall not cover:

a. The liability imposed or assumed by the assured under any Workman's Compensation Statute.

b. The liability of the assured to employees which is based on the relationship of master and servant."

One Andrews was a skilled workman out of regular employment who had been employed by the Works Progress Administration. The Works Progress Administration had requested the Young Men's Christian Association to find work for him and for others. While Andrews was working inside an elevator shaft in the Association building repairing a bracket on the basement elevator door, the elevator descended into the basement, injuring him so severely as ultimately to cause his death. During the time Andrews had been working for the Association he had been under the direction and supervision of the superintendent of the building and he was working under the direction of the superintendent in the particular work in which he was engaged at time of the injury. The work he was to do was selected by and the work done under the direction of the superintendent and the hours of such work were directed and designated by the Association within the limits of the provisions and regulations of the Works Progress Administration. The Works Progress Administration had the right at any time to withdraw Andrews and the other workers from the services they were rendering in the Association building and the Association had a similar right to dispense with such services. The Association had nothing to do with the hiring or discharge or payment of Andrews or of any of these workers. After Andrews' death his widow recovered a judgment against the Association. The insurance company denied liability under its policy, basing the defense on the alleged fact that Andrews was an employee of the Association.

What are the rights of the Young Men's Christian Association?

The court stated that at the time of the injury, Andrews was an employee as regards the relationship of master and servant because he occupied the status known to the law as a "loaned" employee and because the doctrine of loaned employee is recognized in Iowa. As Andrews was therefore an employee he came within one of the aforementioned exclusions and the insurance company was for that reason not liable on the policy.

EMPLOYERS' LIABILITY INSURANCE—ADMIRALTY ACTION

[Oceanic Fisheries Co., Inc., *vs.* United States Fidelity & Guaranty Co., 115 P., 2d, 714.]

Defendant insurer issued to plaintiff a policy of employers' liability insurance containing the following provisions:

"The United States Fidelity and Guaranty Company, hereinafter called the Company, does hereby agree:

"1. To indemnify the person, firm or corporation named in statement 1 of the schedule and hereinafter called the assured, against loss from the liability imposed by law upon the assured for damages on account of bodily injuries or death at any time resulting therefrom, suffered by any employee or employees of the assured as the result of an accident while on or about the vessel or vessels described in the schedule of statements below while this policy is in force.

"2. To defend in the name and on behalf of the assured any suit brought against the assured to enforce a claim, whether groundless or not, for damages on account of bodily injuries or death at any time resulting therefrom, suffered or alleged to have been suffered by any employee or employees of the assured described in the preceding paragraph and as the result of an accident occurring while this policy is in force."

(The above provisions were contained in a "Marine Employer's Endorsement" attached to and made a part of the policy.)

"In consideration of the reduced rate of premium for which this policy is issued, it is hereby understood and agreed, that in the event of no legal liability on the part of the assured for damages as conditioned in Insuring Clause One (1) of the Marine Employer's Endorsement attached to this policy, this policy does not indemnify the assured against any liability for wages and maintenance of injured employer during disability or for cost of medical, surgical or hospital services or treatment or cure to injured employees of the assured or for any transportation charges incurred by the assured for the transportation of injured employees and anything in the policy or attached endorsements to the contrary is hereby amended accordingly. It is further understood and agreed that in the event of a judgment at law against the assured for legal liability for damages as conditioned in the Insuring Clause One (1) of said Marine Employer's Endorsement, this policy does indemnify the assured for such wages and maintenance of injured employees during disability and the cost of medical, surgical and hospital services or treatment and cure to injured employees of the assured and for transportation charges for the transportation of injured employees as may be included in any verdict for damages rendered against the assured, and anything in the policy or attached endorsements to the contrary is hereby amended accordingly."

One Haugen had been injured while employed on a vessel chartered by the insured. The costs of treatment and transportation were paid by the insured. Haugen sued the insured for damages and recovered a verdict and judgment of $1,000, which judgment was paid by the defendant carriers.

Haugen then brought an admiralty action against the insured for care and cure, which action was dismissed. Thereafter the assured brought this action to recover the costs of defending the admiralty action.

What are the insurer's rights?

The court held that the words in the clause "as may be included in any verdict for damages rendered against the assured" meant such costs as were actually included and not those which were merely legally capable of being included.

Hence the insurer was not liable for expenses subsequently incurred in defending admiralty action for care and cure subsequently brought.

FIDELITY

[Cobb et al., *vs.* American Bonding Co. of Baltimore, 118 F., 2d, 643.]

Cobb owned and operated a chain of retail liquor stores. He obtained from the defendant a "Blanket Position Bond" insuring

Cobb against any loss of money or property through fraud, theft, or any other dishonest act or acts of an employee or employees. By the terms of the contract recovery was to be allowed for that part of any inventory shortage which the insured shall conclusively prove is caused by the dishonesty of any employee or employees. Cobb brought suit against the bonding company to recover for inventory shortages totaling $3,883.29, which shortages were alleged to have been caused by the fraud or dishonesty of one or more employees.

The evidence shows that periodic inventory checks from September 1938, through April 1939, revealed shortages in eight of Cobb's retail stores. The shortages from individual stores varied widely, and from time to time inventory checks would reveal overages. At no time did the inventories check exactly. Cobb kept check on store inventories by a system of bookkeeping which he termed a retail perpetual control. Each store was an independent store to itself. Merchandise was billed to the stores at full retail prices, and the book inventory of the particular store was charged accordingly. The merchandise was supposed to be sold from the stores at full retail price, and if goods were sold at discount a sales slip showing the discount was supposed to be kept so that proper credit could be given to the perpetual control account. In the event of breakage, bottle caps were to be saved so that proper credit could be given when monthly inventory checks were made. Each month someone from Cobb's central office went to each store and made an actual physical count of merchandise on hand. The merchandise was counted and its value for inventory purpose was taken to be its full retail price. When the physical count was completed and the final calculations made, the actual inventory of goods on hand in the store should correspond with the value shown by the book inventory or perpetual retail control account.

What are the rights of Cobb?

The court held that the fact that Cobb showed inventory shortages from time to time in eight of his stores was not enough to establish that such shortages were due to dishonesty of an employee or employer. Under the bookkeeping systems used by Cobb, shortages would be reflected by any number of things other than dishonest conduct of employees.

Viewing all the evidence in the light most favorable to Cobb there was created no more than a surmise or suspicion that some of the shortage reflected by the inventories might have been due to dishonesty on the part of an employee or employees. As mere surmise and suspicion are not enough to base a verdict, the insurer was not held liable.

FORGERY BOND—SUBROGATION

[Royal Indemnity Co. *vs.* Federal Reserve Bank, 38 Fed. Supp. 621.]

The plaintiff had issued to the Union Central Life Insurance Company a forgery bond.

One Cable was an agent of the Union Central Life Insurance Company. As such agent he was authorized to solicit and submit applications for life insurance and to render service to all policy-holders in his territory incident to their policies, including the delivery to such policy-holders of all checks or drafts of the company made payable to such policy-holders. Cable forged the signatures of policy-holders to applications for loans, and then when the applications were approved and the checks sent to him for distribution, he forged the names of the payees to the checks, thereafter, endorsed his own name and converted the proceeds to his own use. The checks would be cleared through several banks until they finally reached defendant Bank where they would be stamped "all prior endorsements guaranteed" and they would then be sent to the banks on which the checks were drawn. After receipt of the cancelled checks from the banks the cashier of the Union Central Life Insurance Company would verify the regularity of the issuance of the check but would make no effort to verify the genuineness of the signature of the payees of the check.

The Union Central Life Insurance Company discovered the forgeries in August 1933, and immediately dismissed Cable. It subsequently received $4,217 from plaintiff under its bond and later assigned to plaintiff all its rights arising out of the forgeries.

Defendant, Federal Reserve Bank received no notice of the forged endorsements until August, 1935, when plaintiff demanded payment of $4,217. Defendant refused to pay and plaintiff brought action. In its answer defendant asserted that the Union Central Life Insurance Company was negligent in not comparing the endorsements of payees with the genuine signatures which it had on file, that defendant was prevented from exercising its rights as endorser through failure of said company to notify it of the forgeries for more than two years, etc.

What are the rights of the Insurance Company?

The court held that plaintiff as assignee of the Union Central Life Insurance Company had no right in this action different from or greater than those of the Insurance Company, its obligor in the forgery bonds, and as such assignee is subject to the same defenses as may properly be urged against that company.

The court further found that the Union Central Life Insurance Company was negligent in failing to compare the signatures, and both plaintiff and the Union Company were negligent in failing to promptly notify defendant of the Cable forgeries. Therefore, the insurance company could not recover.

Hospitalization—Misrepresentation

[Kwritzky *vs*. National Casualty Co., 23 N. Y. S., 2d, 776.]

The defendant insured Mrs. Kwritzky against loss due to hospitalization resulting from accidental bodily injuries or sickness.

In filling out the application for the policy Mrs. Kwritzky answered items 9 and 10 as follows:

"9. Have you had any medical or surgical advice or treatment or any departure from good health within the past seven years; is so state when, cause, duration? Peekskill Hospital, 5 days, miscarriage, fully recovered June, 1938.

10. Have you ever had or been advised to have a surgical operation? Yes, above No. 9 Dr. T. Voyce, Peekskill, New York."

Mrs. Kwritzky was hospitalized during the term of the policy and incurred hospital expenses in the amount of $155. She made claim upon the defendant insurer for repayment of these expenses but was refused.

The Insurance Law of New York provided as follows:

"No misrepresentation shall avoid any contract of insurance or defeat recovery thereunder unless such misrepresentation was material. No misrepresentation shall be deemed material unless knowledge by the insurer of the facts misrepresented would have led to a refusal by the insurer to make such contract.

In determining the question of materiality, evidence of the practice of the insurer which made such contract with respect to acceptance or rejection of similar risks shall be admissible."

The insurer proved on the trial, and Mrs. Kwritzky frankly admitted, that she had undergone a thyroid operation within the previous seven years, which she had failed to mention in the application. Her explanation was that she believed this event had occurred more than seven years before.

Evidence was given to show that this insurer rejected persons who had suffered from certain types of thyroid conditions, while they accepted others who had suffered from different forms of the ailment.

What are the insured's rights?

The court held that her failure to disclose the fact that she had been operated on for a thyroid condition prevented the insurer from investigating to determine whether it would accept the risk and issue the policy. This misrepresentation or suppression of information was material and the insured could not recover.

Malpractice Insurance—Optometry

[Kime *vs.* Aetna Casualty & Surety Co., 33 N. E., 2d, 1008.]

The defendant issued a policy to a group of members of the Ohio State Optometric Association of which the plaintiff, Kime, was a member. The policy provided that the defendant would "defend and indemnify each assured (up to $5,000 for one claim) against actual loss and/or expense arising or resulting from claims upon him for damages on account of any malpractice, error or mistake committed or alleged to have been committed * * * in the practice of his profession."

Section 1295-21, General Code (Ohio), provide that "The practice of optometry is defined to be the application of optical principles, through technical methods and devices in the examination of human eyes for the purpose of ascertaining departures from the normal, measuring their functional powers and adapting optical accessories for the aid thereof."

On January 25, 1936 a Mrs. Rowell came to Kime for the purpose of obtaining a replacement of a broken lens. Upon examination Kime informed her that her right eye was irritated and sore due to some foreign substance or dirt located therein, and directed her to return to his office. He then informed her that the foreign substance in her eye should be removed therefrom. He removed it with a surgical instrument, and as a result of this operation the eye became highly inflamed and infected. On a later date plaintiff informed Mrs. Rowell that her other eye contained a foreign substance and he scraped it with a surgical instrument. As a result of the operation performed on both her eyes the tissues became highly inflamed and infected, and she became partially blind.

Mrs. Rowell brought an action against Kime to recover damages for alleged negligence and want of skill in the treatment of her eyes. The trial of this action resulted in a jury verdict for Mrs. Rowell in the sum of $3,000.

Prior to the commencement of their action, the plaintiff notified the defendant of the claim that was being made against him, and the defendant informed him that the policy did not cover mistakes made in a practice other than optometry, and therefore it denied all liability.

Kime settled with Mrs. Rowell and thereafter commenced the action against the insurance company. What are the rights of the insurance company?

The court held that an indemnity insurance policy insuring an optometrist against damages resulting from loss or expense on account of any malpractice, error or mistake in practice of optometry only does not cover malpractice in doing things not covered by the statutory definition of optometry. Removing dirt particles from the eyes of a patient by some objective means is a thing outside of and not included in the practice of optometry as defined by the law. Therefore, the insurer was not held liable.

Robbery Insurance

[London *vs.* Maryland Casualty Company, 299 N. W., 193.]

One Arthur Kaplan had possession of certain furs while representing the insured on a selling campaign. On September 17, 1935, preliminary to calling upon customers in Kansas City, Missouri, Kaplan parked and locked his truck in front of a tavern and went inside for a glass of beer. From where he stood, Kaplan could and by several glances did see the back part of his truck, a black Chevrolet having no distinguishing mark except the word "Minneapolis" in about three-inch type appearing on the right front door. When Kaplan looked out the last time, the truck was gone. He ran outside. His testimony was that at the next corner, about 100 feet away, he saw the rear part of his truck, immediately before it vanished, when it was at right angles to the street upon which the tavern fronted. The truck and part of the furs were recovered the following day.

With respect to loss of property outside of plaintiff's premises, the policy undertook to indemnify for all losses occasioned by robbery or its attempt. Robbery is defined by the policy as follows: "A robbery, within the meaning of this policy, is limited to a felonious and forceable taking of property—(a) by violence inflicted upon the custodian or custodians in the actual care and custody of the property at the time; or (b) by putting such custodian or custodians in fear of violence; or (c) by an overt felonious act committed in the presence of such custodian or custodians and of which they were actually cognizant at the time * * *."

The jury found that plaintiff's loss was covered by subdivision (c) of the policy.

What are the insured's rights?

Upon appeal the court held that literal, physical presence was not essential. It cited another case on the same point which said that the custodian's brief presence in the store was no more than if he had turned his back and then turning again had seen the truck being driven away. The evident intent of the clause in question was to guard against careless or pretended losses by the custodian and not to avoid a loss by a technical strained construction of the policy.

In answering the problem of construing that part of subdivision (c) which required that the custodian be actually cognizant of the overt act the case cited by the court stated: "There is no requirement in this case that the overt act should be seen by the custodian as it commenced."

Such construction seemed the most reasonable in light of the construction already given to the word "presence." As long as the custodian was actually cognizant of the felonious act during its commission and before the felons had completely removed the property, there was compliance with subdivision (c). The insurance company was therefore liable.

OBITUARY

BERTRAND ARCHER PAGE

1873 - 1941

Bertrand Archer Page, a Fellow of the Casualty Actuarial Society, died at his home in West Hartford, Connecticut, on July 30, 1941.

Mr. Page's career is typical of the best American tradition. He was born in Yalesville, Connecticut, in 1873. He was employed in the Ticket Accident department of The Travelers Insurance Company at the age of fourteen. Through his ability and industry he became head of his department before the age of twenty-one and at thirty he was made Secretary in charge of all Accident and Health insurance. A few years later he was elected Vice-President and when the writing of Group insurance was undertaken by his company he was also put in charge of that line. In 1937 he was elected to the Board of Directors of The Travelers Companies.

Mr. Page was gifted with rugged health and a forceful yet friendly personality. His inquiring and brilliant mind continually sought and retained a wide knowledge of many subjects. He would have been a leader in any field of work to which he lent his talents. Insurance was fortunate that he devoted his business life to it.

Mr. Page's position of leadership in the field of Accident and Health insurance was so firmly established that for the last two decades responsible underwriters, almost without exception, sought and depended upon his guidance before inaugurating changes in practice. To him is given the major credit for reestablishing, within the last ten or twelve years, the Accident and Health business on a sound basis and for increasing its appeal to the public by making available to them Medical Reimbursement insurance.

Over twenty years ago, when Non-cancellable Accident and Health insurance was new, a meeting of this Society was principally devoted to a discussion of suitable rates, reserves, and underwriting practices. The evident enthusiasm for this new line was dampened when two speakers, each of whom had had the advantage of discussing the subject with Mr. Page, suggested that under its then present form the line could not be underwritten successfully.

The Casualty Actuarial Society held Mr. Page's interest and admiration. It should be a source of satisfaction to us to know that a man of his quality and attainments gave his membership in this Society a place among his highest honors.

OBITUARY

ALEXANDER ALBERT SPEERS

1888 - 1941

Alexander Albert Speers, an Associate of this Society, died at the home of his sister in Detroit, Michigan, on June 25th, 1941.

Mr. Speers was born April 6th, 1888, in Holland Center, Grey County, Province of Ontario, Canada. He attended elementary- and high-school in that locality after which he matriculated at the University of Toronto, graduating with class honors in 1912. His first position was with the Phoenix Mutual Life Insurance Company of Hartford, Connecticut, and he had earned the title actuary at the time of our entrance into the first World War. He resigned in order to enlist in the United States Navy where he served as a special technician until honorably discharged from the service. Upon his return to civilian life, he became actuary of the North American Life Insurance Company of Omaha which position he relinquished at the request of the governor of Nebraska, who wanted him as consultant during an investigation of the life insurance situation in that state. Upon completion of this commission, he came to the Michigan Insurance Department as actuary, leaving three years later to make a connection with the Toledo Travelers Insurance Company of Toledo, Ohio. In 1927 he resigned to go with the Michigan Life Insurance Company where he had become Secretary-Treasurer and Director at the time of his death.

Mr. Speers was interested in all forms of insurance and in addition to membership in this Society, he was a Fellow of both the Actuarial Society of America and the American Institute of Actuaries, as well as a member of the Fraternal Actuarial Association and the International Congress of Actuaries. This erudition was only a part of a well-rounded life. An active participant in athletics and sports as a youth, his favorite game was lacrosse; in later life he took up less strenuous forms of exercise after having managed several lacrosse teams for younger men. However, Mr. Speers will be longest remembered as a friend for, having been blessed with the virtues of kindliness and understanding, he was endeared to all who knew him.

OBITUARY

JAMES WATERMAN GLOVER

1870 - 1941

With the death of James Waterman Glover on July 15, 1941, this Society lost a member* whose name had long been identified with insurance in the United States and who during his lifetime had contributed notably to actuarial science.

Professor Glover was born at Clio, Michigan, graduated from the University of Michigan in 1892, received his Ph.D. from Harvard three years later, and then returned to Michigan as an instructor in mathematics. During the first years he taught the following courses: Calculus, Mechanics, Projective Geometry, Higher Algebra, Theory of Substitution, Theory of Invariants and the Theory of Functions.

His keen interest in the theory of probability led him in 1902 to introduce a course in actuarial theory—the first course ever offered in this subject by any University in this country. As a result of his pioneering in this new field, his services were demanded by various states, the United States government, and by Canada in connection with various insurance, pension and banking investigations. He also served various insurance companies in the capacity of consulting actuary. From 1910 to 1929 he

* Elected a Fellow on May 19, 1915.

served the U. S. Census Bureau as Expert Special Agent and during this time the United States Life Tables were prepared under his supervision and represent the finest piece of work of its kind that has appeared to date. From 1930 to 1932, while on leave of absence from the University of Michigan, Professor Glover served as President of the Teachers Insurance and Annuity Association of America. He served as Chairman of the Department of Mathematics of the University of Michigan from 1927 to 1934, greatly strengthening its staff during this period, and at the end of which he was awarded the Edward Olney distinguished professorship by the Regents of the University.

Although his name is usually associated with the teaching of actuarial theory at Michigan, he founded the courses in the mathematics of finance which have been copied by most of the universities in this country, and taught the first course in mathematical statistics ever offered at the University of Michigan. The subsequent development of statistical courses at Michigan was due largely to the background afforded by the correlated courses in probability and the calculus of finite differences which meanwhile were being developed by Professor Glover as part of the curriculum in actuarial theory.

Probably no professor kept in closer touch with former students than Professor Glover, and he personally placed several hundreds of these students in responsible positions with life insurance companies and state departments. The success of these students speaks well for the sound theoretical and practical knowledge that he always imparted to his classes.

CASUALTY ACTUARIAL SOCIETY

November 14, 1941

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Gardner V. Fuller
Charles H. Franklin
Carl H. Frederickson
Harry Furze
Fred S. Garrison
Harold J. Ginsburgh
J. Bryan Glenn
Russell P. Goddard
Edward S. Goodwin
Charles M. Graham
Thompson B. Graham
William J. Graham
William A. Granville
Winfield W. Greene
H. Pierson Hammond
Edward R. Hardy
Leonard W. Hatch
Charles J. Haugh
Charles E. Heath
Robert Henderson
Clarence W. Hobbs
Lemuel G. Hodgkins
Frederick L. Hoffman
Charles H. Holland
Russell O. Hooker
Solomon S. Huebner
Charles Hughes
Robert S. Hull
Burritt A. Hunt
Arthur Hunter
William A. Hutcheson
Charles W. Jackson
Henry H. Jackson
Roger A. Johnson, Jr.

FELLOWS—Continued

William C. Johnson
F. Robertson Jones
Harold M. Jones
Elsie Kardonsky
Gregory C. Kelly
William H. Kelton
A. Loomis Kirkpatrick
Morris Koloditzky
Mark Kormes
Clarence A. Kulp
John M. Laird
Stewart M. LaMont
John R. Lange
Arnette R. Lawrence
James R. Leal
William Leslie
Joseph Linder
Daniel J. Lyons
William N. Magoun
Ralph M. Marshall
Norton E. Masterson
Arthur N. Matthews
Emma C. Maycrink
D. Ralph McClurg
Matthew H. McConnell
Alfred McDougald
Robert J. McManus
Gustav F. Michelbacher
John H. Miller
Samuel Milligan
John A. Mills
Victor Montgomery
William L. Mooney
George D. Moore
Albert H. Mowbray
Louis H. Mueller
Frank R. Mullaney
Ray D. Murphy
Thomas M. Oberhaus
Edward Olifiers
Frank J. O'Neill

Robert K. Orr
Olive E. Outwater
Sanford B. Perkins
Francis S. Perryman
Stefan Peters
Jesse S. Phillips
Samuel C. Pickett
Sydney D. Pinney
Dudley M. Pruitt
Frederick Richardson
Otto C. Richter
Robert Riegel
Rainard B. Robbins
William F. Roeber
Emil Scheitlin
George I. Shapiro
David Silverman
Robert V. Sinnott
Albert Z. Skelding
Edward S. Skillings
Jack J. Smick
Seymour E. Smith
John B. St. John
Edward C. Stone
Wendell M. Strong
William Richard Strong
Thomas F. Tarbell
John S. Thompson
John L. Train
Antonio T. Traversi
Nels M. Valerius
Hiram O. Van Tuyl
Alan W. Waite
Harry V. Waite
Lloyd A. H. Warren
Albert W. Whitney
Harry V. Williams
William R. Williamson
Herbert E. Wittick
Lee J. Wolfe
Arthur B. Wood

ASSOCIATES

Milton Acker
Saul B. Ackerman
Samuel N. Ain
Austin F. Allen
Robert E. Ankers
A. Edward Archibald
Arthur L. Bailey
James C. Barron
Robert D. Bart
Arthur E. Bateman
Bruce Batho
W. Harold Bittel
Nellas C. Black
John M. Blackhall
Edward L. Bomse
Perry S. Bower
Cloudesley R. Brereton
Helmuth G. Brunnquell
Louis Buffler
James M. Bugbee
Margaret A. Burt
Leo D. Cavanaugh
S. T. Chen
Stuart F. Conrod
William H. Crawford
Joseph B. Crimmins
Malvin E. Davis
Reginald S. Davis
William F. Dowling
Harilaus E. Economidy
Frank A. Eger
L. Leroy Fitz
Amos H. Fitzgerald
Frank A. Fleming
John Froberg
Fred J. Fruechtemeyer
Maurice L. Furnivall
John J. Gately
Richard A. Getman
Joseph P. Gibson, Jr.
James F. Gildea
Harold R. Gordon
Walter C. Green
Eli A. Grossman
A. N. Guertin
Olaf E. Hagen
Robert E. Haggard
Hartwell L. Hall
Hugh P. Ham
Scott Harris
Ward Van Buren Hart
George F. Haydon
Grady H. Hipp
Carl N. Jacobs
Edward S. Jensen
H. Lloyd Jones
Loring D. Jones
Robert G. Kelly
Carl L. Kirk
E. W. Kitzrow
Frederick Knowles
William Lassow
Julius Lieblein
Harold E. MacKeen
Joseph J. Magrath
Jacob Malmuth
Charles V. R. Marsh
William H. Mayer, Jr.
Rosswell A. McIver
Samuel M. Michener
Henry C. Miller
John L. Milne
Eduard H. Minor
John C. Montgomery
Joseph P. Moore
Rolland V. Mothersill
Robert J. Myers
Fritz Muller
S. Tyler Nelson
William Newell
Karl Newhall
Earl H. Nicholson
Walter E. Otto
Donald M. Overholser
Richard M. Pennock
John H. Phillips
Morris Pike
Kenneth B. Piper
William A. Poissant
William F. Poorman

ASSOCIATES—Continued

Sylvia Potofsky
John M. Powell
Joseph Raywid
Harry F. Richardson
James A. Roberts
Norman Rosenberg
Harry M. Sarason
Arthur Sawyer
Exequiel S. Sevilla
Norris E. Sheppard
John L. Sibley
Arthur G. Smith
William F. Somerville
Armand Sommer
Harold S. Spencer
Herbert P. Stellwagen
Hugh E. Stelson
Kendrick Stoke
Walter F. Sullivan
Arthur E. Thompson
Frederick H. Trench
M. Elizabeth Uhl
Charles S. Warren
James H. Washburn
Max S. Weinstein
Eugene R. Welch
Alexander C. Wellman
Walter I. Wells
Charles A. Wheeler
Frank G. Whitbread
J. Clarke Wittlake
Donald M. Wood
Donald M. Wood, Jr.
Milton J. Wood
Charles E. Woodman
Barbara H. Woodward
James M. Woolery

ABSTRACT FROM THE MINUTES OF THE MEETING
November 14, 1941

The twenty-ninth annual (fifty-seventh regular) meeting of the Casualty Actuarial Society was held at the Hotel Biltmore, New York, on Friday, November 14, 1941.

As Chairman, Vice-President Harold J. Ginsburgh called the meeting to order at 10:15 A.M. and stated that President Sydney D. Pinney found it impossible to attend the meeting for reasons of health. Thereupon, a resolution was passed that the Society send Mr. Pinney a telegram which had been composed by Mr. Clarence W. Hobbs, reading as follows:

> "DEAR SID:
>
> THIS HERE WILL LET YOU KNOW WE'RE SORRY AS CAN BE TO MISS YOUR CHEERFUL PRESENCE FROM OUR GOODLY COMPANY. WHILE HAROLD GINSBURGH'S GOOD ENOUGH, TO GIVE HIM HIS JUST DUES, IT PAINS OUR VERY SOULS TO SEE ANOTHER IN YOUR SHOES. WE MISS YOUR GAVEL'S EASY GRACE, YOUR WORDS OF WISDOM TRUE, BUT MORE, AND MOST PARTICULAR, THE THING WE MISS IS YOU. ACCEPT THESE GREETINGS FROM OUR HEARTS AND WISHES MOST SINCERE TO HAVE YOU WITH US, HALE AND STRONG, WHAT TIME WE MEET NEXT YEAR.
>
> CASUALTY ACTUARIAL SOCIETY"

The roll was called, showing the following forty-four Fellows and fourteen Associates present:

FELLOWS

Ainley
Berkeley
Blanchard
Brown, F. S.
Cahill
Carleton
Carlson
Cleary
Cogswell
Comstock
Dorweiler
Elliott

Farley
Fondiller
Ginsburgh
Goddard
Graham, T. B.
Hardy
Hobbs
Johnson, R. A.
Jones, H. M.
Kardonsky
Kelly, G. C.
Koloditzky

Kulp
Linder
Lyons
Masterson
Matthews
Maycrink
Mills
Moore, G. D.
Perryman
Peters
Pruitt
Silverman

FELLOWS—Continued

SINNOTT
SMICK
SMITH, S. E.
TARBELL
VALERIUS
VAN TUYL
WHITNEY
WILLIAMSON

ASSOCIATES

BARRON
DOWLING
FITZ
GATELY
HART
HIPP
MARSH
MINOR
MYERS
POTOFSKY
ROSENBERG
THOMPSON, A. E.
WARREN
WOODWARD

By invitation, a number of officials of casualty companies and organizations were present.

Mr. Ginsburgh made an address entitled "Some Effects of New Premium Determination Procedures."

The minutes of the meeting held May 16, 1941, were approved as printed in the *Proceedings.*

The Secretary-Treasurer (Richard Fondiller) read the report of the Council and upon motion it was adopted by the Society.

The following Associates had passed the necessary examinations and had been admitted as Fellows:

ROGER A. JOHNSON, JR.   MORRIS KOLODITZKY   STEFAN PETERS

The following candidates had passed the necessary examinations and had been enrolled as Associates:

ROBERT D. BART   WILLIAM F. DOWLING

Diplomas were then presented by the Chairman to Roger A. Johnson, Jr., Morris Koloditsky and Stefan Peters, who had been admitted as Fellows under the 1941 examinations.

Upon recommendation of the Council, William R. Williamson was elected a Fellow by the Society under the terms of Article III of the Constitution.

The Chairman announced the deaths, since the last meeting of the Society, of three Fellows, Edward J. Bond, James W. Glover and Bertrand A. Page, and one Associate, Alexander A. Speers, and the memorial notices appearing in this Number were thereupon read.

The report of the Secretary-Treasurer was read and accepted. The report of finances follows:

CASUALTY ACTUARIAL SOCIETY

Annual Report of Finances

Cash Receipts and Disbursements from October 1, 1940 to September 30, 1941

Income

On deposit on October 1, 1940 in Marine Midland Trust Company		$1,180.60
Members' Dues	$2,620.00	
Sale of *Proceedings*	1,235.11	
Examination Fees	834.00	
Luncheons and Dinners	216.50	
Interest and Miscellaneous	21.62	
Michelbacher Fund	63.25	4,990.48
Total		$6,171.08

Disbursements

Printing and Stationery		$4,195.83
Postage, Express, etc		135.00
Stenographic Services		420.00
Library Fund		57.00
Luncheons and Dinners		253.64
Examination Expense		583.43
Insurance		5.00
Miscellaneous		119.30
Total		$5,769.20
On deposit on September 30, 1941 in Marine Midland Trust Company		401.88
Total		$6,171.08
Income	$4,990.48	
Disbursements	5,769.20	
Excess of Income over Disbursements	$ 778.72	
1940 Bank Balance	1,180.60	
1941 Bank Balance	$ 401.88	

Assets

Cash in Bank	$ 401.88
*Bonds	4,750.00
Total Assets	$5,151.88

*Includes Michelbacher Fund $1,363.84

The Auditing Committee (W. P. Comstock, Chairman) reported that the books of the Secretary-Treasurer had been audited and his accounts verified.

The Examination Committee (Russell P. Goddard, Chairman) submitted a report of which the following is a summary:

1941 EXAMINATIONS — SUCCESSFUL CANDIDATES

The following is a list of those who passed the examinations held by the Society on May 21 and 22, 1941.

ASSOCIATE EXAMINATIONS

PART I:

Joseph M. Andalman
Milton F. Chauner
John W. Clarke
James B. Copple
Morris Dansky
Howard Dunn
K. Arne Eide
Agnes Goli (Miss)
Irene G. Harnish (Miss)
Ernest Holzinger
Milton Horowitz
W. H. Jones
Edwin B. Lancaster
John J. Marcus
Olan T. McMillan
Robert Merritt
Frederic E. Nemmers
Bernard Preston
Harold W. Schloss
Lynn Shepard
Robert H. Smith
Paul A. Turner
Joseph Ullman

PART II:

Edward S. Allen
Richard T. Babcock
Lyle Barnhart
Abraham S. Baronowitz
Robert D. Bart
Milton F. Chauner
John W. Clarke
David J. Cohen
James B. Copple
Morris Dansky
Frank F. Dodge
Robert Dorfman
K. Arne Eide
Jesse Feld
Herbert L. Gross
Benjamin Harmatz
Edwin B. Lancaster
Leonard Lewis
John J. Marcus
Burton I. Maynard
Robert C. Perry
Darrison Sillesky
Robert H. Smith
Joseph Ullman

PART III:

James B. Copple
Morris Dansky
Milton Horowitz
Leonard Lewis
John C. Morris
John H. Rowell
Robert H. Smith
Joseph Ullman

PART IV: John W. Clarke
Florence Conrad (Miss)
Morris Dansky
Frank F. Dodge
Harold C. Dunn
Patrick F. Farrelly
Jesse Feld
Edwin B. Lancaster
Burton I. Maynard
Irving Rosenbloom
Harold W. Schloss
Lynn Shepard

PART V: Robert D. Bart
Charles W. Crouse
Roger A. Johnson, Jr.
Stefan Peters
S. M. Ross

FELLOWSHIP EXAMINATIONS

PART I: Roger A. Johnson, Jr.
Stefan Peters
Norman Rosenberg

PART II: Roger A. Johnson, Jr.
Stefan Peters

PART III: Roger A. Johnson, Jr.
Stefan Peters

SPECIAL: Morris Koloditzky

The Council's re-election of Clarence W. Hobbs as Editor and of Thomas O. Carlson as Librarian, was announced.

The annual elections were then held and the following officers and members of the Council were declared elected:

President	Ralph H. Blanchard
Vice-President	Harold J. Ginsburgh
Vice-President	James M. Cahill
Secretary-Treasurer	Richard Fondiller
Editor	Clarence W. Hobbs
Librarian	Thomas O. Carlson

Members of Council (terms expire in 1944):

Clarence A. Kulp Jack J. Smick Howard G. Crane

The new papers appearing in this Number were presented.

Recess was taken for lunch at the Hotel until 2:15 P.M.

Informal discussion was participated in by a number of members and representatives of insurance organizations upon the following topics:

1. Apparent effect of the current defense effort on the premium volume and the underwriting results for the various lines of casualty insurance.
2. Problems resulting from the New York Motor Vehicle Safety Responsibility Act, and possible solutions.

Upon motion, the meeting adjourned at 4:30 P.M.

INVITED GUESTS PRESENT AT THE MEETING

R. H. CAPLAN, JR., Chief Accountant, Fireman's Fund Indemnity Company, New York.

JOSEPH F. COLLINS, Chief, Rating Bureau, New York Insurance Department, New York.

ALVIN F. COMSTOCK, Rating Engineer, Century Indemnity Company, Hartford, Conn.

ERNEST A. ERICKSON, Underwriter and Statistician, Utilities Mutual Insurance Company, New York.

HON. CHARLES F. J. HARRINGTON, Commissioner of Insurance, Commonwealth of Massachusetts, Boston, Mass.

RALPH L. INGLIS, Resident Vice-President, Associated Indemnity Corporation, New York.

MYRTLE SNYDER KELLY, Statistician, Pennsylvania Compensation Rating and Inspection Bureau, Philadelphia, Pa.

FREDERICK C. KESSLER, Secretary-Treasurer, Consolidated Taxpayers Mutual Insurance Company, Brooklyn, N. Y.

FRED KIRCHSTETTER, Asst. Statistician, Utilities Mutual Insurance Company, New York.

HENRY D. SAYER, General Manager, Compensation Insurance Rating Board, New York.

C. L. SCHLIER, Statistician, New Jersey Compensation Rating and Inspection Bureau, Newark, N. J.

F. B. SCHROETER, Underwriter, Zurich General Accident & Liability Insurance Company, New York.

H. G. WIBERG, Asst. Secretary, Lumber Mutual Casualty Insurance Company, New York.

VOL. XXVIII, PART II NO. 58

PROCEEDINGS

MAY 15, 1942

INSULARITY IN INSURANCE

PRESIDENTIAL ADDRESS BY RALPH H. BLANCHARD

The institution of insurance is characterized, in the United States, by minute differentiation of form and function. This differentiation has created separate divisions, each of which carries with it a set of interests more or less at variance with the interests of other divisions.

First, there is the grand partition between the powers of the major types of carriers: life, fire-and-marine, and casualty. The lines of demarcation are a bit fuzzy in spots, but the fields are reasonably distinct.

Little harm, in fact, probably much good, arises from the separation of life insurance from other forms of business. The life insurance carrier deals with a well-defined problem which seldom impinges on programs involving other kinds of insurance. Requirements for safety and consequences of failure are peculiar to that branch. It is generally agreed that the life insurance business should be separately conducted and specially regulated in the interest of the insuring public.

It is difficult, however, to see any sound fundamental reason for the continuance of the separation between fire-and-marine carriers and casualty carriers. The historical reasons for this separation are clear—but they are not persuasive when one analyzes the functions of these two types of carriers. Were it sought to make a functional division, it might be suggested that, at least, it should not be necessary to purchase insurance from two different types of carriers in order to cover loss of a single piece of property, and that the division should be between non-conflicting forms of insurance, such as insurance against loss of physical property, third-party insurance, bonds, and disability insurance. It is my own belief that this problem should be resolved by doing away with specific powers and permitting authorization of carriers to write any sort of insurance, other than life, not contrary to public policy. I should hope to see carriers making full use of such broadened powers and insureds responding to their opportunity not only to purchase broad coverage but to secure it under a minimum number of contracts without division of responsibility.

A notable development in the fire insurance business is the practically nationwide provision of extended coverage, an extension by endorsement of the fire policy far in the direction of all-risk coverage, achieved only after much travail and over the dead bodies of assorted separate policies covering windstorm, explosion, riot, hail, aircraft damage, and such. But certain causes of loss sacred to the casualty carrier are omitted or excluded from the endorsement, although Texas permits it to cover loss due to explosion of steam boilers and related objects "located off the premises insured," if the loss occurs to dwellings or similar specified property. A nurses' home may secure this item of coverage if it is of non-fireproof, but apparently not if it is of fireproof construction; a very nice distinction. Canada is reckless enough to permit it for any kind of property.

In casualty insurance, coverage has been divided by subject matter of insurance rather than by causes of loss. Liability coverage which has been issued separately for a variety of items is now brought together under comprehensive forms.

The personal property floater is available to insureds in about half the states, and specific authority for it was written into the early drafts of the New York insurance code, but underwriters achieved its elimination, apparently to protect themselves against their own possible lack of underwriting control, and to avoid any change in the settled lines between fire-and-marine and casualty jurisdiction. They feared that perpetual bugaboo, disturbance of the business.

Oddly enough, opposition to extension of underwriting powers comes principally from those on whom the powers would be conferred. They are in the position of preferring limitation of powers—like old men who shun responsibility and new problems, preferring to cling to past successes rather than to pioneer. I venture to think that much adverse criticism of the insurance business would not arise if its practitioners were as interested in developing new methods as they are in defending what they already have—if they sought as diligently for what is worthy in new proposals as for reasons against their adoption.

Even between the lines written by the same carriers, one finds something of the same attitude. No talk on suretyship is complete without some attempt to demonstrate that bonding is not insurance, and that insurance methods, particularly in the determination of rates, are quite inapplicable to that field. Bonding men have an unwarrantedly high opinion of the mathematical perfection of their insurance colleagues' calculations, and a certain attachment to the pleasures of individual judgment and personal conference which makes them allergic to statistical and actuarial practices.

In the fire-and-marine field, the enterprising and strangely named inland-marine departments were finally forced to limit their efforts to write insurance against loss instead of against loss due to this and that individual (and traditionally hallowed) cause of loss. Under the nationwide definition and various strangling statutes the field has been divided among the various types of underwriters, and the fire departments of some carriers have been saved from the encroachments of their own inland-marine departments.

Nowhere does insularity show itself more clearly than in insurance regulation and there particularly clearly in the difficulty experienced with rating and coverage of interstate risks, whether in the casualty or in the fire field. Every sign points to the desirability of coverage and rating systems coextensive with insured business units. But try to write an all-inclusive contract, even for a single line of insurance, and rate it and sell it on a sound basis adapted to a modern nationwide industrial or commercial business. You will find varying contract requirements, resident-agent laws, prohibition and limitation of generally accepted rating methods, no rate regulation in one state and strict regulation in another. Efforts to cut across these difficulties run afoul of the regulatory authorities who are often torn between local interests, desire to enforce the law, and a realization that interstate activities call for interstate methods.[1]

The weight of authority among students of constitutional law supports the belief that, if Congress chose to enact regulatory insurance legislation, it would be sustained by the federal courts. A judge of the Supreme Court of Tennessee has recently said that "it may be conceded that in the prosecution of its insurance business it [a life insurance company] is engaged in interstate commerce."[2] I take no position on the relative desirability of state and federal regulation but I do suggest that anyone interested in the subject would do well to read Chapters 19 and 20 of Van Metre's "Transportation in the United States"[3] to learn how it came about that the "encroachment of federal power upon state power has been such that the states have been compelled virtually to abandon the whole field of railroad regulation." The author points out that the Hepburn Act, providing for drastic federal control, was close to defeat when "some particularly scandalous financial manipulation among the Southeastern railroads became a matter of public knowledge." Note the use that was made in the hearings before the Temporary National Economic Committee of the financial manipulation of relatively unimportant life insurance companies. And, parenthetically, note the view-with-alarm tactics of certain life insurance people who gave those hearings wide publicity and, I believe, gave the investigators ideas that might not otherwise have occurred to them.

Fire and casualty insurance interests would do well to put their business in such shape that it will offer little opportunity for the same sort of treatment. Sore spots existed in the life insurance business and they were

[1] See the interesting articles by Hobbs on *State Regulation of Insurance Rates* in this and the preceding number of the *Proceedings.*

[2] *Robinson* v. *Massachusetts Mutual Life Insurance Company,* 158 S. W. 2nd 442 (November 29, 1941).

[3] *Foundation Press,* Chicago, 1939.

dramatized. With the passing of the war emergency, renewed interest in the fire and casualty insurance business may be expected. The best way to meet such interest is by eliminating sore spots in these fields.

States and insurance groups, sniping away at each other from their separate islands might do well to ponder the possibilities of constructive cooperation in the interest of building an improved structure. I prefer to think of representatives of stock and mutual carriers sitting at the conference table to develop a standard automobile policy, rather than appearing before a Congressional committee to discuss their relative contributions to the Treasury.

I might go on indefinitely to cite examples of insularity and to discuss its unfortunate effects. My topics would be experience rating, implementing the war-damage-insurance scheme, graded-expense loadings, agency relations, and many more. But it would be foolish to bring these coals to Newcastle. My only purpose is to recall to you their existence, to ask you to consider the broad problems they represent, and to suggest that your jobs as actuarial technicians will be better done if guided by an appreciation of their significance.

One last word from my own field. I have long advocated a functional approach to insurance education—basic study of the underlying facts and theory as they cut across the whole insurance institution. It is natural that, with insurance developing along specialized lines, education has followed. I seem to find increasing sympathy for educational synthesis, and I hope that it may contribute something to the growth of a less parochial outlook in the business of insurance than has been in vogue heretofore.

AN ACTUARIAL ANALYSIS OF RETROSPECTIVE RATING

BY

THOMAS O. CARLSON

Probably the most universal hallmark of the scientific mind is a persistent penchant for pigeonholing. This trait, which to the layman places the ultimate seal of futile dessication upon research and which has been the butt of a multitude of jokes down the centuries, is nevertheless one of the most potent instruments of investigation; for in the broad it leads to a proper perspective in viewing a given field, and in the narrow it leads to the delineation of distinctive relationships between the constituents of the field. The course often seems wayward and the ports of arrival startling even to the investigator, so that to maintain a balanced keel it is helpful for him to bear in mind Hosea Biglow's observation that

"Facs are contrary 'z mules."

This paper is, in epitome, the pigeonholing technique applied to the gamut of retrospective rating plans, both so-called and not so-called, that fall within the domain of practicability. And in no field that I know of is the Yankee apothegm just quoted better illustrated. The phrase "within the domain of practicability" affords a wide latitude to the author in the establishment of boundaries for his discussion. The term "Analysis" is used in a spirit which is the antithesis of pretentiousness, and has been resorted to only because the ostensibly humbler term "Note" has been so often applied to papers more unassailably definitive than I dare claim this one to be.

Any presentation of such an analysis is simplified in proportion to the succinctness of the symbolism used, but there is a degree of succinctness beyond which one's fellow-workers will not bother to follow. It is hoped that the Table of Symbols set forth in Appendix A falls short of that degree. Properly speaking, an appendix should be reserved for notes of elaboration not essential to the continuity of the paper, but a glance at the length of Appendix A should produce immediate forgiveness for any breach of etiquette in this instance. The symbols conform to the accepted standard notation for common concepts, and have all been selected so as to permit typing as easily as possible. A few comments upon the loss and loss ratio symbols bearing subscripts may be helpful, and have been included in Appendix B.

Classification of Plans

Retrospective rating includes within its scope any rating procedure which determines the premium for a risk after the expiration of the policy period for which the premium is being calculated, and in such a manner as to reflect the loss experience incurred during that period. Since the loss experience of the risk is to be reflected in the rating, it follows that certain items in the final premium will be functions of the risk's losses. Other items will be functions of the standard premium or of the final premium in the general case. Consequently, the formula

$$R = B + CL$$

is implicit in the definition of retrospective rating; in this formula R is the final premium, B is a function of the standard premium, L represents the risk's losses, and the multiplier C in addition to including a credibility factor reflects those elements in the final rate which vary with the losses. Any item which is a function of the final premium, such as taxes, is included as a factor common to both of the terms B and CL. The restriction of R by the imposition of a minimum premium limitation H and a maximum premium limitation G will be expressed by writing the formula in the condensed form,

$$H \leqslant R = B + CL \leqslant G$$

By way of illustration, it may be noted that this is the exact formula for the application of the standard plan for workmen's compensation risks,[1] B being termed the basic premium and C being termed the loss conversion factor. The factor C is constant for a given state, but the values of B, H and G vary by premium size and are set forth in a table of rating values. This plan is referred to hereafter as the standard plan.

This fundamental formula has a most deceptively innocent appearance, for upon resolution into its elements an intricate mutability is discovered which is productive of widely varying particular formulas. It may be well to distinguish at once between what I shall call a particular formula and a particular plan: one formula may embrace a great variety of particular plans, each with its own definite schedule of rating values. A formula completely defined specifies as respects expenses no more than the mode of allocating to the two terms the provisions for the respective items; the aggregate provision for each such item is a characteristic of a particular plan, not of a particular formula. A formula may or may not specify that a limit per claim or per accident is imposed upon the risk's losses reflected in the rating, but a particular plan would have to define such a limit. Therefore, in the determination of a formula, the mode of distributing one expense item may constitute one condition to be imposed arbitrarily, or what we may call one degree of freedom, but the amount of the aggregate provision for that item is not pertinent to the analysis of the formula. In view of the fact that there may be more than a dozen degrees of freedom in a retrospective rating formula, a brief discussion of each element in the standard premium dollar

[1] Described in detail in "The Retrospective Rating Plan for Workmen's Compensation Risks," by Sydney D. Pinney, P.C.A.S., Vol. XXIV, p. 291.

is in order, and it will be found that for practical consideration the problem may be greatly simplified in advance.

Taxes must be paid upon the final premium. The provision for taxes may therefore be included through the factor $\frac{1}{1-T}$ in each term of the formula, as in the standard plan, or it may be obtained by applying the same factor as a multiplier to the final premium, as in the Comprehensive Rating Plan for National Defense Projects. In the latter event, the basic premium and the loss conversion factor will include no provision for taxes; the minimum and maximum premiums may exclude or may include the provision for taxes according as they are imposed as limitations before or after the application of the tax multiplier to the formula result. It is not the purpose of this paper to discuss the advantages or disadvantages of these different methods. It is clear that the analysis of the respective formulas will not be essentially affected by the inclusion or the exclusion of the tax element.

The production cost allowance and the provisions for general administration, exposure audit and inspection expenses may be variously included in the formula. In the standard plan these four items are fundamentally included in the basic premium and thus vary with the standard premium: the administration, audit and inspection items are determined directly as functions of the standard premium, and the production cost allowance is formally determined as a function of the minimum premium which in turn depends upon the standard premium. Each of the four items could be independently apportioned to the two terms. To my knowledge such a differentiation in their treatment has never been proposed in principle, and since an interpretably simple analysis is dependent upon a reduction in the available number of conditions to be imposed, the four items have been handled herein as one, with the symbol V to designate them jointly.

A reduction in the expense provisions from the amounts contemplated by the full manual rates is not inherent in the concept of retrospective rating but is customarily reflected therein. Any such reduction will involve one or more of these four items. The production cost allowance in the standard plan is equivalent to the full percentage provision in the manual rates applied to the minimum premium, thus effecting a reduction from the allowance under the guaranteed cost basis. It is almost universally accepted that actual administration and audit expenses decrease percentagewise in terms of the standard premium as the premium size increases: the introduction of expense constants recognized this situation to some extent, and a further gradation has been reflected in some of the approved retrospective rating plans. Inspection expense is not in general considered susceptible to reduction from the provisions in the standard rates. In some instances such costs on the larger risks may even amount to a greater per cent of the standard premium than on the smaller risks; as an example may be cited the automobile liability line in which the small risks represent insurance on single automobiles and the larger risks represent the fleet business. The symbol Vr is used in this paper to designate the aggregate provision for these expenses in any retrospective rating formula, so that $(V - Vr)$ represents the total reduction from the standard provisions for these four items.

The expense of investigating and adjusting claims is more closely related to the losses than any of the other expense items, and is commonly reflected in the loss conversion factor. It is primarily because of this fact that claim expense is given consideration apart from other company expenses. It would not appear logical to reflect any of the other expense items, except taxes, in the loss multiplier unless claim expense were also reflected therein. The full provision for claim expense is represented in the following discussion by F. This provision may, like the other company expense items, be variously distributed between the two terms in the fundamental formula. If the entire amount of F is provided through the loss conversion factor C, the component of C reflecting such provision has the form F/E, where E is the permissible loss ratio or the expected losses.

If there is any limitation upon the extent to which the risk's losses may affect the rating, as for example through the use of a credibility factor less than 100% or through the imposition of a minimum or a maximum limit upon the final premium, the "rated" losses included in the final premium through the term CL will be less than the total expected losses in the aggregate, and in order to produce a technical balance within the plan the basic premium must be increased by an amount equal to the "non-rated" losses thus eliminated from the contribution made by the second term to the final premium. Any limitation of the losses entering the second term of the formula will result in a corresponding curtailment of those expense provisions which are functions of the losses; and the balance of such curtailed expense items must be included in the basic premium. The value of the basic premium is unaffected by the manner of making this adjustment and it is most feasibly accomplished by applying the expense component of the loss conversion factor to the loss provisions in the basic premium. The symbol J will be used to designate the loss multiplier which reflects any expense items other than taxes. Then, as already noted, if all claim expense and no other expense is provided through such a factor,

$$J = \frac{F}{E}$$

If we assume as a norm a procedure under which claim expense is a function of losses and under which production cost, administration, audit and inspection expenses are functions of the standard premium, any variation from such a distribution of expenses may be handled by the introduction of a single symbol W to designate the amount by which any expenses provided for by the loss multiplier J exceed the full claim expense provision F. Thus in the general case

$$J = \frac{F + W}{E}$$

and a flat amount equal to W must be deducted from the basic premium, for on the average the expense provision produced by the term $\frac{W}{E}$ in J will be equal to $\frac{W}{E} \cdot E$, or W. The symbol W as thus used is unique among the symbols so far introduced in not being essentially positive. If W is negative, then J produces less than the equivalent of the full provision for claim expense, as in the case, for example, wherein an amount equal to W is included flat (i.e., as a direct percentage of the standard premium) in the basic premium for claim expense. If an amount equal to M is included flat in the basic premium for claim expense and an amount equal to N is provided for other expenses through the medium of J, then by setting $W = N - M$ this interchange of functions is reflected in a simple manner. Thus W operates as a clearing house for any departures from what we have assumed to be the normal procedure in treating expense items other than taxes, a sort of factotum capable of handling two-way traffic if need be.

If any expenses other than taxes are provided through the loss conversion factor, that is, if J is greater than zero, then J may be applied to the losses either modified or unmodified by credibility: the more logical of these two procedures would seem to be that which includes such expense provisions in direct proportion to the "rated" losses, i.e., which applies the multiplier to the credibility-modified losses. If we represent the credibility by the familiar Z, then in the case wherein J is applied to the credibility-modified losses, disregarding the tax multiplier,

$$C = JZ + Z = (1 + J)\, Z,$$

and in the case wherein J is applied to the losses without modification by credibility,

$$C = J + Z$$

The two classes of formulas thus produced do not comprehend the entire field, for it is evident at a glance that each of the formulas given for C is a special case of a more general formula,

$$C = Ja + Jb \cdot Z + Z,$$

wherein

$$Ja + Jb = J,$$

$$Ja = \frac{Fa + Wa}{E},$$

and

$$Jb = \frac{Fb + Wb}{E}$$

The first value given for C represents the case where $Ja = 0$, the second where $Jb = 0$. This general formula, which does not appear to be of much if any practical importance, is treated briefly in Appendix C.

Other modes of providing expenses may suggest themselves, such for example as having the provision V included by means of a multiplier applied to B rather than a term contained within B. These in my opinion are more of academic than practical interest. The formulas developed later in this paper can be readily adapted to reflect such variations, however, and in fact many variations reduce to the forms discussed in full. In the example just cited, for instance, since B is a function of the standard premium, a multiplier of B is similarly a function of the standard premium, and the variation is reducible for analytic purposes to what I have chosen as a standard form.

No differentiation between allocated and unallocated claim expense has been made in this discussion. Such a division is not important for analytical purposes. The natural procedure would be to treat allocated claim expense as it is treated in the determination of manual rates. For workmen's compensation, all claim expense is treated as a single item in calculating manual rates, and consequently in the standard plan no differentiation is made between the two types of claim expense. For liability lines, on the other hand, allocated claim expense is reported with losses and is treated as a loss in the determination of manual rates: the most natural procedure in developing a retrospective rating plan for such lines would therefore be to include allocated claim expense with the losses; in this case F would represent unallocated claim expense only, and E would represent expected losses plus allocated claim expense. In the Comprehensive Rating Plan for National Defense Projects the allocated claim expense is added to the losses after the latter have been increased by the unallocated claim expense multiplier, the multiplier in this case being applicable to the losses only.

The provision for profit and contingencies in the manual rates will be designated by D, and in the retrospective premium by Dr. These symbols correspond to the symbols V and Vr introduced to designate expenses other than claim or taxes. The rates for workmen's compensation insurance do not include a profit factor except in one state; the contingency factor in the manual rates varies according to the accumulated past experience and is designed to produce neither an underwriting profit nor an underwriting loss over a period of years. On lines other than workmen's compensation the manual rates include a definite provision for profit and contingencies.

There are many ways in which this item may be included in a retrospective rating formula. Any of the modes which have already been discussed for reflecting the respective expense items could be applied to this item as well. In the workmen's compensation line in order to avoid a sharp break in the provision at the eligibility point for application of the rating plan, the introduction could be graded in a variety of ways; for example, the provision for any particular size of risk could be included as some per cent of that portion of the standard premium in excess of the premium required to qualify for rating; or it could be included as D per cent modified either by the credibility or by the ratio of rated losses to expected losses. Although these and other methods produce a slight variation in the individual formulas, we may in the interest of simplicity consider that the provision Dr is included as a flat item in the basic premium, with any reflection of a split in the aggregate provision between the two terms of the fundamental formula taken care of through the "happy" medium of the symbol W, corresponding to the treatment of the expense items. Under any practicable means for introducing this provision, it can ultimately be reduced to the sum thus indicated or it can be reflected by extending the tax multipliers applicable either to the first or to both terms of the formula to reflect both T and D, i.e., by making the multiplier equal to $\frac{1}{1-T-D}$. Any changes in the formulas to reflect the latter mode of including the item will be apparent and should require no elaboration.

The actual losses L reflected in the final premium are limited in the aggregate to those losses lying between the loss allowances in the minimum and in the maximum premiums. These losses may be limited by the application of a credibility factor, and they may be further constrained by a limit per claim or per accident; as examples may be cited the $10,000 limitation per claim in the New York plan for workmen's compensation, and the limitation to the experience rating normal loss amount per case which was a feature of a proposal given extensive consideration some years ago.[2]

The credibility factor, represented by Z, if explicitly expressed is a component of the loss conversion factor C; in such a case some function of Z is also involved in the basic premium. As an independent variable in theory, Z could follow any specified law or no law. In the light of practical considerations, however, we may again considerably reduce the scope of our investigations, since we are interested in only two cases, (1) that in which Z increases between the limits of 0 and 1.00 as the premium size increases, and (2) that in which Z is constant. The standard plan for workmen's compensation is a special case of the latter category, with Z equal to 1.00 for every size of risk.

The minimum and maximum premiums H and G may be subjected to particular conditions. The loss provision in the basic premium, and consequently each term in the fundamental formula, is affected by the variation of H and G. The basic premium may be adapted to a particular progression of values, with corresponding adjustments in H or G or both. The loss conversion factor is determined fundamentally when the credibility and the distribution of the expense items in the formula are known; as will be seen,

[2] P.C.A.S., Vol. XXIV, p. 330.

however, a rounding of the loss conversion factor may produce an effect upon the basic premium.

Of the foregoing elements of variability, all but one in general represent separate degrees of freedom. It should be noted, however, that the determination of C is equivalent to the determination of Z and vice versa.

What started out as a field of several dimensions for classification has by lopping and squeezing now been reduced to an order sufficiently low to permit a reasonably simple treatment, and a design can be developed which is somewhat less like a crazy quilt than an ordered pattern.

The order of handling the separate elements of variability in the development of a formula is immaterial for our purposes. To make a start, however, let us review the expense elements, the limitation of losses, the credibility and the rating factors in succession.

Expense Elements

In the general case the provisions for expenses included flat in the basic premium are equal to

$$Vr - W$$

and the remaining expense provisions other than taxes are produced by a loss multiplier

$$J = \frac{F + W}{E}$$

If $W = 0$, we may consider that claim expense is provided wholly through a loss multiplier and that other expenses except taxes are provided wholly as a direct function of the standard premium. In case any other distribution is contemplated, it can be indicated by using the symbols N and M already explained, setting $N - M = W$. For analysis, such a distinction is immaterial, and the symbols N and M have therefore been omitted from the table in Appendix A. No further mention of such a differentiation will be made.

If $W = Vr$, we may consider that all expenses are provided through a loss multiplier, a case which would be practicable only for a very large risk.

If $W = - F$, it follows that $J = 0$ and no expenses other than taxes vary with the losses.

W, in its representation of expense provisions, may then vary between the limits $- F$ and Vr, or

$$-F \leqslant W \leqslant Vr$$

All these variations are reflected by including W in the formula, and consequently need not be studied further as producing formula types.

The method of including the loss multiplier J in the loss conversion factor C is, however, productive of two types requiring individual consideration:

$$\text{Type I.}\quad C=\frac{JZ+Z}{1-T}$$

$$\text{Type II.}\quad C=\frac{J+Z}{1-T}$$

where T is the percentage provision for taxes.

Each of these two types is deducible from a more general formula wherein

$$C=\frac{Ja+Jb\cdot Z+Z}{1-T}$$

$$Ja+Jb=J$$

Type I is deduced by setting $Ja=0$, Type II by setting $Jb=0$. The general formula is discussed in Appendix C.

The provision for profit and contingencies may be included in several ways, none of which would seem to affect our analysis fundamentally. This provision has throughout been represented by Dr as an element in the basic premium, with the understanding that the symbol W would absorb any portion of D reflected in J.

As already indicated, the mode of providing for taxes, although dividing all formulas into two groups according as the loading is applied to each term separately or to the final sum of the two terms, is not important for our present purposes.

Limitation of Losses

In the general case, the risk's losses reflected in a rating are restricted by a limit per claim or per accident in addition to the limitation imposed by the specification of minimum and maximum premiums. In the discussion, unless otherwise noted, the insurance charge for losses in excess of the loss allowance in the maximum premium will be considered as including losses above a specified limit per claim or per accident. Excess pure premium ratio tables which reflect such a limitation may be constructed and in fact have been constructed in at least one state for workmen's compensation risks.[3] One particular plan in which the limit per case is the normal loss amount under the experience rating plan will be accorded separate consideration.

Credibility

Two cases are of particular importance:

Class A. Credibility increases with premium size,

$$0\leqslant Z\leqslant 1.00$$

Class B. Credibility is constant.

An important case under Class B is that for which the credibility equals 1.00 throughout, as illustrated by the standard plan.

[3] "On Graduating Excess Pure Premium Ratios," by Paul Dorweiler, Vol. XXVIII, p. 132.

Rating Factors

In the general formula no particular conditions are imposed upon the minimum or maximum premiums. The only relationships specified are that the sum of B and CL, equal to R, shall be not less than H nor more than G. The predetermination of certain conditions to be satisfied by H or G or both gives rise to four cases of sufficient practical importance to be worthy of special attention.

Case (a). Minimum premium is greater than basic premium, maximum premium equals standard premium:

$$H > B, G = P$$

Case (b). Minimum premium equals basic premium, maximum premium is greater than standard premium:

$$H = B, G > P$$

Case (c). Minimum premium equals basic premium, maximum premium equals standard premium:

$$H = B, G = P$$

Case (d). Same as (c), but in addition the loss allowance in the maximum (i.e., standard) premium equals the expected losses:

$$H = B, G = P, G' = P' = E$$

The imposition of these conditions cannot of course be made unless the requisite degrees of freedom are available. For example, if the mode of providing for all expense items and the limitation of losses per claim or per accident have been specified, three conditions remain to be determined: the establishment of a constant credibility factor would remove one of these, leaving as possibilities among the foregoing special cases only (a), (b) and (c); the three conditions under (d) could not under such circumstances be satisfied except by coincidence.

For our purposes, therefore, there are two important cases of the general formula, giving rise to two broad categories which will be referred to as Types I and II according as the loss conversion factor excluding taxes takes the form $(JZ + Z)$ or $(J + Z)$. Each of these categories has two important subdivisions designated as Classes A and B according as the credibility increases with the premium size or is constant. And within each subdivision consideration will be given to certain conditions which may be imposed on the rating values, denoted as Cases (a), (b), (c) and (d). The mode of providing for taxes does not affect our analysis of other variables because in one way or another the tax multiplier is common to all terms. The mode of distributing all other expense provisions is conveniently removed as an issue by the versatile symbol W. And any loss limitation per claim or per accident is offset by an increase in the charge for excess losses included in the basic premium. We are then ready to proceed with our study.

It might be noted before embarking upon the formula analysis that more than one formula may be represented in a specific retrospective rating plan. For example, consider a plan under which the credibility increases from 0 to a maximum value of 1.00 as the premium size increases: the formulas involved for the premium range wherein the credibility is variable are different, as will be seen, from those involved for the upper premium range over which the credibility is constant at its maximum value.

Not being qualified to discuss the interaction of policyholders' dividends and retrospective rating, I have omitted all consideration of this matter, in the hope that it might receive attention in a written discussion of this paper.

Rating Formula

The general formula, as we have already seen, is

$$H \leqslant R = B + CL \leqslant G \tag{1}$$

In this formula, for Type I,

$$C = \frac{(1+J)\,Z}{1-T} \tag{2-I}$$

and for Type II,

$$C = \frac{J+Z}{1-T} \tag{2-II}$$

with

$$J = \frac{F+W}{E} \tag{3}$$

for both types.

We know further that the provision included in the basic premium as a direct function of the standard premium for expenses other than taxes and for profit and contingencies is

$$Vr + Dr - W.$$

In order to determine the loss provision in the basic premium it is most convenient to determine first the average premium collected for all risks of a given size. The assumption underlying the development of any plan is that it is technically in balance, that is, that the provisions for expenses and losses produced in the aggregate for all risks of a given premium size are the same as would be produced if all the risks were written on a guaranteed cost basis reflecting the same aggregate provisions for expenses. The satisfaction of this condition is not only the touchstone for testing the technical validity of any plan, but it also serves as the stepping stone to the establishment of most of the relationships in which we are interested.

Clearly the amount B will be collected on every risk, regardless of loss ratio. Losses up to but not in excess of the loss ratio G' on every risk will be reflected in the second term, G' being the loss allowance in the maximum premium G and determined from the equation

$$G = B + CG' \tag{4}$$

In the aggregate therefore the contribution to the average premium made by the second term, using the summation symbols as defined in Appendix B, will amount to

$$C \cdot \frac{1}{n} \sum_{L=0}^{G'} L = CG'q,$$

n being the total number of risks of the given premium size. Further, by reason of the minimum premium limitation, an additional amount will be collected equal to

$$C \cdot \frac{1}{n} \sum_{L=0}^{H'} (H' - L) = CH's$$

wherein H', the loss allowance in the minimum premium H, is defined by the equation

$$H = B + CH' \tag{5}$$

It should be noted that $G'q$ is a function of a given standard premium P and the loss ratio G', and similarly as respects $H's$, so that for given values of G' and H' these amounts will vary with the premium size. The nature of this variation is indicated in Table I.

The average premium has thus been determined as

$$Rv = B + CG'q + CH's \tag{6}$$

The loss provisions and the expenses other than taxes dependent upon the loss provisions in Rv amount to $(1 + J)\,E$, so that the corresponding provisions to be included in B for Type I must equal

$$\begin{aligned} &(1 + J)\,E - (1 + J)\,Z\,(G'q + H's) \\ &= (1 + J)\,E\,(1 - Z) + (1 + J)\,Z\,(G'p - H's) \\ &= (1 + J)\,E\,(1 - Z) + (1 + J)\,ZI \end{aligned}$$

where $(1 + J)\,ZI$, which has been set equal to $(1 + J)\,Z\,(G'p - H's)$, is commonly termed the "net insurance charge for excess losses." The term $(1 + J)\,ZG'p$ is known as the "gross insurance charge for excess losses," and $(1 + J)\,ZH's$ as the "average loss and expense saving in minimum premium risks."

For Type II, the corresponding provision for losses and expenses dependent thereon to be included in the basic premium is equal to

$$\begin{aligned} &(1 + J)\,E - (J + Z)\,(G'q + H's) \\ &= E\,(1 - Z) + (J + Z)\,(G'p - H's) \\ &= E\,(1 - Z) + (J + Z)\,I, \end{aligned}$$

with interpretations of $(J+Z)\,I$, $(J+Z)\,G'p$ and $(J+Z)\,H's$ analogous to those given in the preceding paragraph for the corresponding terms under Type I.

The resulting expressions for B in (1) are then, for Type I,

$$B=\frac{Vr+Dr-W+(1+J)\,E\,(1-Z)+(1+J)\,ZI}{1-T}, \tag{7-I}$$

and for Type II,

$$B=\frac{Vr+Dr-W+E\,(1-Z)+(J+Z)\,I}{1-T} \tag{7-II}$$

The expanded formula (1) becomes, for Type I,

$$H\leqslant R=\frac{Vr+Dr-W+(1+J)E(1-Z)+(1+J)ZI}{1-T}+\frac{(1+J)ZL}{1-T}\leqslant G, \tag{8-I}$$

and for Type II,

$$H\leqslant R=\frac{Vr+Dr-W+E(1-Z)+(J+Z)I}{1-T}+\frac{(J+Z)L}{1-T}\leqslant G, \tag{8-II}$$

with J defined by (3) and with

$$I=G'p-H's, \tag{9}$$

or

$$I=E\,(1+G'x-H'x)-H'$$

if expressed directly in terms of excess pure premium ratios.

As we might expect, there is a close analogy between the credibility-weighting process in this formula and under experience rating, so that if we introduce the familiar concept of adjusted losses defined as

$$A=E\,(1-Z)+LZ$$

we may write (8-I) in the form

$$H\leqslant R=\frac{Vr+Dr-W+(1+J)\,(A+ZI)}{1-T}\leqslant G, \tag{10-I}$$

with the loss provision ZI necessary in order to reflect the restrictions imposed by H and G.

The corresponding expression for Type II is somewhat less simple:

$$H\leqslant R=\frac{Vr+Dr-W+A+J\,(I+L)+ZI}{1-T}\leqslant G \tag{10-II}$$

Since

$$P=\frac{V+D-W+(1+J)\,E}{1-T} \tag{11}$$

and the reduction from the standard provisions for expenses other than claim or taxes and for profit and contingencies, all expressed in terms of the standard premium as base, is designated by

$$S = V - Vr + D - Dr,$$

the equations (7) defining B may be written

$$B = P - \frac{S}{1 - T} - C\ (E - I), \tag{12}$$

a form which will be found extremely useful.

In the standard plan, the credibility is 100% throughout, so that the expected loss term disappears from both equations (7). Further, by reason of the rounding of the loss conversion factor and its use to absorb differences in the tax loadings from state to state, $W \neq 0$, so that

$$B = \frac{Vr + Dr - W + (1 + J)\ (G'p - H's)}{1 - T} \tag{13}$$

The gross insurance charge for excess losses in the standard plan is then equal to the average losses in excess of the loss allowance in the maximum premium loaded for those expenses dependent upon losses; the offsetting saving on minimum premium risks is the difference between the loss allowance in the minimum premium and the average losses on minimum premium risks, loaded for those expenses dependent upon losses.

Under either Class A or Class B, the only variation in (7) for the special Cases (a) to (d) will be in the expressions for the insurance charge. Case (d) is not possible under Class B if the distributions of the expense provisions have been independently established. The values of the component I in the insurance charge for these special cases are shown below:

$$\text{Case (a)}: \quad I = P'p - H's \tag{9a}$$

where

$$P' = \frac{P - B}{C}$$

$$\text{Case (b)}: \quad I = G'p \tag{9b}$$

$$\text{Case (c)}: \quad I = P'p \tag{9c}$$

$$\text{Case (d)}: \quad I = Ep \tag{9d}$$

The basic, minimum and maximum premiums and the loss conversion factor must all be specified if formula (1) is to be definite. These are commonly referred to as the rating values for the particular plan. Their determination and their mutually dependent variation will be discussed in a later section of the paper. Since the determination of the credibility is equivalent to the determination of the loss conversion factor, if the expense apportionment is known, this matter as well will be deferred to the same section.

If a limitation per claim or per accident is imposed upon the risk's losses, modifying the value of L in the second term of the fundamental formula, such a limitation is reflected by an increase in the insurance charge included in the basic premium. In the case of the $10,000 limitation per claim for the workmen's compensation line in New York State, this is accomplished by reflecting the loss limitation in the construction of the excess pure premium ratio tables upon which the insurance charge is based. The Supplementary Rating Plan, given extensive consideration some years ago but never formally made effective, avoided the use of excess pure premium ratio tables by utilizing the split in the adjusted losses produced by application of the prospective experience rating plan to the risk. The losses in the term CL were limited by application of the normal loss amount per case provided for under the prospective plan. The excess loss charge, exclusive of a flat percentage of the standard premium added to reflect the maximum premium limitation, was equal to $\frac{Ae}{A} \cdot E$, where Ae represents the excess adjusted and A the total adjusted losses for the individual risk. Thus the best prospective estimate of the charge for losses above the normal on the particular risk was substituted for an average charge. The use of a flat percentage to reflect the maximum premium limitation could not, however, be justified in the light of our present-day knowledge of the variation of such an item by premium size for a fixed maximum percentage surcharge.

Many variations in the presentation of the retrospective rating formula are possible, some of which possess definite psychological advantages. One of these, the so-called Premium Return Plan, will be discussed in detail in a later section. One other will be briefly analyzed here, to illustrate the procedure of verifying the technical validity of a formula.

Consider the formula,

$$R = B + (1 - Z)\,(E - L) + CL \leqslant P$$

By comparison with formulas (8) it appears that the middle term has borrowed $E\,(1 - Z)$ from the first term in (8) and $-(1 - Z)\,L$ from the second term. Taxes on $-(1 - Z)\,L$, equal in amount to $-\frac{T}{1-T}\,(1 - Z)$, must be included in C, but C otherwise reflects J and not Z, so that the formula would seem to fall under Type II, Class A, Case (c). In fact, assuming that

$$C = \frac{1+J}{1-T} - \frac{T}{1-T}\,(1 - Z),$$

the complete multiplier of L which is divided between the second and third terms in the rating formula turns out to be

$$\frac{J+Z}{1-T}.$$

This is identical with the loss conversion factor under Type II. Then the B in the rating formula must be equal to

$$\frac{Vr+Dr-W+TE\,(1-Z)+(J+Z)\,P'p}{1-T}$$

in order to balance (6) properly. If B and C have the values thus determined in the course of the analysis, the formula is properly balanced, and the classification indicated above is correct.

Average Reduction from Standard Premium

Since the same aggregate amount must be provided for losses regardless of what the rating plan may be, the average premium for all risks of a given standard premium size is equal to the standard premium less the net reduction in the standard provisions for expenses, profit and contingencies including taxes thereon. This produces directly the first of the formulas (14) shown below for Rv. The second is the same as (6) in the foregoing section, the third is derived from (12), the fourth from (6) and (5), and the fifth from (6) and (4). Thus,

$$\left.\begin{aligned} Rv &= P-\frac{S}{1-T} \\ &= B+C\,(G'q+H's) \\ &= B+C\,(E-I) \\ &= H+C\,(H'p-G'p) \\ &= G-C\,(G's-H's) \end{aligned}\right\} \qquad (14)$$

It follows from these equations that the average reduction from the standard premium may take the following forms, each of interest:

$$\left.\begin{aligned} P-Rv &= \frac{S}{1-T} \\ &= C\,(P'-G'q-H's) \\ &= C\,(P'-E+I) \\ &= C\,(P'-H')-C\,(H'p-G'p) \\ &= C\,(G's-H's)-C\,(G'-P') \end{aligned}\right\} \qquad (15)$$

In the two last equations, $(P-H)$ may be substituted for $C\,(P'-H')$ and $(G-P)$ for $C\,(G'-P')$.

The average reduction, or the net expense reduction (as the expression for $\frac{S}{1-T}$ will be abbreviated henceforth), is thus equivalent to the following loss provisions all modified by application of the loss conversion factor:

(1) The loss allowance in the standard premium, less the average losses up to the loss allowance in the maximum premium, less the average loss savings on minimum premium risks.

(2) The excess of the loss allowance in the standard premium over the total expected losses for that size of risk, plus the loss portion of the insurance charge without modification by credibility.

(3) The allowance for losses between the minimum and standard premiums, less the sum of the average losses between the loss allowances in the minimum and maximum premiums.

(4) The excess of the allowance for losses over the average losses between the loss allowances in the minimum and maximum premiums, less the allowance for losses between the standard and maximum premiums.

These formulas apply for the general case regardless of the value of the credibility. The corresponding formulas for Cases (a) to (d) will be set forth, without verbal interpretation; the first and third are applicable to all four cases and will not be repeated here.

$$\text{Case (a):}\quad \left.\begin{aligned} P - Rv &= C\,(P's - H's) \\ &= C\,(P' - H') - C\,(H'p - P'p) \end{aligned}\right\} \tag{15a}$$

$$\text{Case (b):}\quad \left.\begin{aligned} P - Rv &= C\,(P' - G'q) \\ &= CG's - C\,(G' - P') \end{aligned}\right\} \tag{15b}$$

$$\text{Case (c):}\quad P - Rv = CP's \tag{15c}$$

$$\text{Case (d):}\quad P - Rv = CEs = CEp \tag{15d}$$

Rate for Individual Risk

A thorough understanding of the plan is aided by analysis of the credits or surcharges on individual risks as the loss ratio varies throughout its possible range. In the following, the contributions of the loss and expense portions respectively to the premium reductions are shown, and the surcharges are broken down into the loss contribution and the offsetting reduction produced by the expense gradation. The constitution of the loss conversion factor C as defined in (2) and (3) should be born in mind.

All of these formulas may be deduced from the formulas (15) for $(P - Rv)$, since the net expense reduction which we wish to segregate from the loss portion of the individual risk's credit or surcharge is identically equal to $(P - Rv)$. Many other expressions for the credit or surcharge could of course be derived, but only the more significant ones have been set forth.

Group 1: $L \leqslant H'$

These are the minimum premium risks, i.e.,

$$
\begin{aligned}
R &= H \\
P - H &= \frac{S}{1-T} + C\,(H'p - G'p) \qquad (16)
\end{aligned}
$$

The maximum credit a risk may earn is equal to the net expense reduction, plus the average converted losses between the loss allowances in the minimum and maximum premiums.

$$\text{Case (a): } P - H = \frac{S}{1-T} + C\,(H'p - P'p) \qquad (16a)$$

$$\text{Case (b): } P - H = \frac{S}{1-T} + CG'q \qquad (16b)$$

$$\text{Case (c): } P - H = \frac{S}{1-T} + CP'q \qquad (16c)$$

$$\text{Case (d): } P - H = \frac{S}{1-T} + CEq \qquad (16d)$$

The last term on the right-hand side of each of the formulas (16) to (16d) is equal to $(Rv - H)$, or the additional reduction on minimum premium risks beyond the average reduction on all risks.

Group 2: $H' < L \leqslant P' \leqslant G'$

These risks earn premiums between the minimum and standard premiums or equal to the latter.

$$
\left.
\begin{aligned}
R &= B + CL \\
P - R &= C\,(P' - L) \\
&= (P - H) - C\,(L - H') \\
&= \frac{S}{1-T} + C\,(H'p - G'p) - C\,(L - H') \\
&= \frac{S}{1-T} + C\,(G'q + H's) - CL
\end{aligned}
\right\} \qquad (17)
$$

From the second (or third) of these equations, it is seen that the premium reduction on such risks is equal to that on minimum premium risks less the converted losses in excess of the loss allowance in the minimum premium, an obvious result. From the fourth, the loss portion of the reduction from the standard premium is equal to the converted losses collected on the average from other than the basic premium (refer to (6)), less the converted losses on the individual risk. This last form is the one chosen for presenting the results for Cases (a) to (d).

$$\text{Case (a)}: \quad P-R=\frac{S}{1-T}+C\,(P'q+H's)-CL \tag{17a}$$

$$\text{Case (b)}: \quad P-R=\frac{S}{1-T}+CG'q-CL \tag{17b}$$

$$\text{Case (c)}: \quad P-R=\frac{S}{1-T}+CP'q-CL \tag{17c}$$

$$\text{Case (d)}: \quad P-R=\frac{S}{1-T}+CEq-CL \tag{17d}$$

Group 2a: $H'<L<G'<P'$

It is possible to establish a maximum premium limitation below the standard premium, so long as the relationship

$$Rv<G<P$$

is observed. G cannot equal Rv, because in that event the plan would degenerate (in the mathematical sense) to a guaranteed cost plan. In this special case the formulas (17) to (17d) still are true, and to (17) may be added the formula,

$$P-R=(P-G)+C\,(G'-L)$$

Group 3: $P'<L\leqslant G'$

These risks earn premiums between the standard and maximum premiums or equal to the latter, and thus develop surcharges.

$$\left.\begin{aligned} R&=B+CL\\ R-P&=C\,(L-P')\\ &=(G-P)-C\,(G'-L)\\ &=C\,(G's-H's)-C\,(G'-L)-\frac{S}{1-T}\\ &=CL-C\,(G'q+H's)-\frac{S}{1-T} \end{aligned}\right\} \tag{18}$$

From the first and fourth of these equations, it is evident that the formula for the surcharge on risks in this group is the exact negative of the formula for the credit on risks in Group 2. The negatives of the second and third of the formulas (17) could have been included, but the corresponding formulas involving the maximum premium have been substituted. The surcharge is equal to the maximum surcharge less the amount by which the risk's converted losses fall short of the provision for such losses in the maximum premium. The interpretation of the third equation will be apparent from the interpretation of the maximum surcharge (obtained by setting $G' = L$ and thus eliminating the middle term) under Group 4 below. From the fourth equation, the following formula for Case (b) is deduced:

$$\text{Case (b)}: \quad R - P = CL - CG'q - \frac{S}{1-T} \tag{18b}$$

Cases (a), (c) and (d) are not possible in this group.

Group 4: $L > G' \geqslant P'$

These risks all earn the maximum premium, i.e.,

$$R = G$$

$$G - P = C\,(G's - H's) - \frac{S}{1-T} \tag{19}$$

Consequently, the maximum surcharge is equal to the excess of the allowance for converted losses over the average actual converted losses between the loss allowances in the minimum and maximum premiums, less the net expense reduction under the plan. This should be compared with the interpretation for risks in Group 1.

$$\text{Case (b)}: \quad G - P = CG's - \frac{S}{1-T} \tag{19b}$$

For Cases (a), (c) and (d),

$$R = P$$

$$\text{Case (a)}: \quad R - P = 0 = C\,(P's - H's) - \frac{S}{1-T} \tag{19a}$$

$$\text{Case (c)}: \quad R - P = 0 = CP's - \frac{S}{1-T} \tag{19c}$$

$$\text{Case (d)}: \quad R - P = 0 = CEs - \frac{S}{1-T} = CEp - \frac{S}{1-T} \tag{19d}$$

Group 4a: $L \geqslant G'$, $G' < P'$

This special group corresponds to Group 2a already discussed, and is the group of risks earning the maximum premium under a plan wherein the maximum is less than the standard premium. In this special case,

$$R = G$$

$$P - G = \frac{S}{1-T} - C\,(G's - H's), \tag{20}$$

or if

$$H = B,$$

$$P - G = \frac{S}{1-T} - CG's \tag{20b}$$

The credit on such maximum premium risks is equal to the average credit on all risks diminished by the amount by which the average converted losses between the loss allowances in the minimum and maximum premiums fall short of the allowance for such losses.

Premium Return Plan

The first of the formulas (17),

$$P - R = C\,(P' - L),$$

suggests an approach to the application of retrospective rating which has obvious psychological advantages. The plan as thus far discussed provides for the determination of the individual risk's premium by formula (1), that is, the final retrospective premium is built up from the basic premium. The formula just given, however, with a rearrangement of terms determines the final premium by deduction of a discount from the standard premium, the discount being a specified percentage C of the loss saving on the individual risk as measured from the loss allowance in the standard premium. For the case in which L exceeds P', the first of the formulas (18) could be similarly converted into a formula setting forth the final premium as equal to the standard premium plus a surcharge which is expressed as the product of C times the excess of L over P'. The psychological advantages of this presentation of a surcharge are not so apparent as in the corresponding case of a discount, however, so that this approach which determines the final premium through a departure from the standard premium is of particular importance in cases under which the maximum does not exceed the standard premium, such as Cases (a), (c) and (d). In such cases, this formula is the basis for what is commonly termed a "Premium Return Plan," the rating procedure under which may be expressed as follows:

> Final retrospective premium = standard premium minus [per cent of loss saving to be returned × (loss allowance in standard premium minus actual losses)]; the standard premium is charged if the actual losses exceed the loss allowance in the standard premium.

This result may, or may not, be subject to a specified minimum premium. There are thus four essential rating values, as in the case of formula (1) which we may call the accretive formula, three of which, the minimum and maximum premiums and the loss conversion factor, are common to both formulas; the basic premium in the accretive formula is replaced in the premium return formula by the loss allowance in the standard premium. The loss conversion factor, which in the rating procedure above was termed "per cent of loss saving to be returned," is also referred to frequently as the "premium return factor."

The symbolic representation, with the maximum premium equal to the standard premium, is

$$H \leqslant R = P - C\,(P' - L) \leqslant P \tag{21a}$$

This is labeled (21a) because it represents our Case (a) under retrospective rating.

For Cases (c) and (d),

$$R = P - C\,(P' - L) \leqslant P, \tag{21c}$$

and

$$R = P - C\,(E - L) \leqslant P \tag{21d}$$

In Case (c),

$$H = B = P - CP'$$

and in Case (d)

$$H = B = P - CE$$

A plan with the rating formula (21c) has been made effective in Pennsylvania for application to workmen's compensation insurance on National Defense Projects.

Under (21a) there are two degrees of freedom in the determination of the rating values, under (21c) there is one, and under (21d) none, if the modes of expense allocation are known. For analysis it is convenient to revert these formulas to their equivalent accretive forms. Considerable light may be shed upon the interpretation if we anticipate to some degree the section to be devoted to the determination of the rating values. For Case (a), from (19a) it follows that

$$\frac{S}{1-T} = C\,(P's - H's)$$

so that

$$C = \frac{\dfrac{S}{1-T}}{P's - H's} \tag{22a}$$

For Type I,

$$Z = \frac{S}{(1+J)\,(P's - H's)}, \tag{23a-I}$$

and for Type II,

$$Z = \frac{S}{P's - H's} - J \tag{23a-II}$$

The loss conversion factor, or the per cent of loss saving below the loss allowance in the standard premium which is returned on the individual risk, is thus equal to the net expense reduction including taxes divided by the loss savings which are to be reflected in determining the return premiums on all risks. In other words, the premium return factor distributes the amount obtained through reduced provisions for expenses and contingencies in direct proportion to loss savings as measured from the loss allowance in the standard premium, with due regard to the minimum premium limitation on the result.

For Case (c),

$$C = \frac{\frac{S}{1-T}}{P's} \tag{22c}$$

$$\text{Type I:} \quad Z = \frac{S}{(1+J)\,P's} \tag{23c-I}$$

$$\text{Type II:} \quad Z = \frac{S}{P's} - J \tag{23c-II}$$

For Case (d),

$$C = \frac{\frac{S}{1-T}}{Es} = \frac{\frac{S}{1-T}}{Ep} \tag{22d}$$

$$\text{Type I:} \quad Z = \frac{S}{(1+J)\,Es} = \frac{S}{(1+J)\,Ep} \tag{23d-I}$$

$$\text{Type II:} \quad Z = \frac{S}{Es} - J = \frac{S}{Ep} - J \tag{23d-II}$$

Clearly, it is possible for either Z or C in these formulas to exceed unity. But as a practical matter, it is not feasible to permit Z to exceed unity, so that if Z is the dependent variable in general, it will have to be considered independent when it is limited to 1.00. In such an event the dependent variable in (23a) will be either H or P', while in (23c) it will be P'. In (23d) the credibility cannot be fixed at 1.00 without changing the loss allowance in the standard premium. But that value has been fixed at E by the conditions defining Case (d); consequently, if Case (d) has been used in developing a premium return plan, then for those premium sizes for which Z (or C) is limited to a fixed value, such as 1.00, Case (c) must be used and P' considered as a dependent variable.

If $J = 0$, then it is more practicable to limit C to unity, rather than to limit Z thus, because of the difficulty of explaining a return of more than 100% of the loss saving on a risk; in theory, however, since taxes on such a return are also saved, it is perfectly logical (though not so practicable) to have a 100% credibility, in which case

$$C = \frac{1}{1-T},$$

or the premium return factor is equal to the credibility of 100% loaded for taxes.

Further examination of (22a) brings a revelation which is startling at first thought, namely, that if the minimum premium is one of the rating values independently determined, and if the credibility is actually variable (has not attained its upper limit), the individual pays the same premium regardless of the value of J, i.e., regardless of the manner in which the provisions for expense items are distributed as functions of the standard premium on the one hand and as functions of the losses or loss provisions on the other. That this is true is shown by the fact that the expression on the right-hand side of (22a),

$$\frac{\frac{S}{1-T}}{P's - H's},$$

is independent of any element relating to the apportionment of expense items to the two terms of the fundamental formula (1). From (23a) it is seen that as J decreases, Z increases, but $(1-T)\,C$ remains constant if S, P' and H are given.

Once the credibility attains its upper limit, however, so that it can no longer behave as a variable, the value of P' (which as we have seen becomes a dependent variable in such an event) is dependent upon the value of J, and will vary if J varies, but not in proportion to J.

This survey of retrospective rating from the vantage-point of the premium return concept has cast new light upon the nature of the loss conversion factor. In the formulas (21) this factor turned out to be the proportion of the loss saving to be returned on each risk developing a premium less than standard, i.e., a factor governing the distribution of the amount available for return to those risks earning a credit, with due reflection of the minimum premium limiting the final premium.

It is reasonable to hypothesize an analogous function of the loss conversion factor in the general formula (1), to wit, that the loss conversion factor represents the proportion of the loss saving to be returned on each risk developing such a saving, the factor being so determined that the aggregate of all such returns is equal to the aggregate reduction from the standard provisions for expenses and contingencies plus the aggregate of the surcharges above standard premium on those risks developing such surcharges. The effect of the minimum and maximum premiums upon the returns and surcharges must be reflected in the calculation of the loss conversion factor.

In order to test the propriety of this analogical deduction, the value of C may be calculated on the basis of such an assumption, and then compared with its value obtained from a solution of (8) for any given value of R. The use of P for R in the latter solution is convenient and does not affect the result.

The reduction from the standard provisions for expenses and contingencies is equal to

$$\frac{S}{1-T}=\frac{V-Vr+D-Dr}{1-T}$$

The aggregate of the surcharges on risks developing a final premium in excess of the standard is equal to

$$C\cdot\frac{1}{n}\cdot\sum_{L=P'}^{G'}L=C\,(G'q-P'q) \qquad \text{(See Appendix B)}$$

The aggregate of the savings to be returned to risks developing a final premium less than the standard is equal to

$$C\,(P'-H')-C\cdot\frac{1}{n}\cdot\sum_{L=H'}^{P'}L=C\,(P's-H's) \qquad \text{(See Appendix B)}$$

By the hypothesis to be tested,

$$C\,(P's-H's)=\frac{S}{1-T}+C\,(G'q-P'q)$$

so that

$$\left.\begin{aligned} C&=\frac{\dfrac{S}{1-T}}{(P's-H's)-(G'q-P'q)}\\ &=\frac{\dfrac{S}{1-T}}{P'-G'q-H's}\end{aligned}\right\} \qquad (24)$$

On the other hand, from (8) and (9),

$$P=\frac{Vr+Dr-W+(1+J)\,E}{1-T}-C\,(E-G'p+H's)+CP',$$

and by (11),

$$P=\frac{V+D-W+(1+J)\,E}{1-T}$$

Therefore, subtracting the one value of P from the other,

$$\frac{S}{1-T}-C\,(P'-G'q-H's)=0$$

and

$$C = \frac{\dfrac{S}{1-T}}{P' - G'q - H's}$$

as before, proving the validity of the deduction by analogy which was being tested.

The second of equations (18) indicates that the fundamental formula (1) may be cast into the form,

$$H \leqslant R = G - C\ (G' - L) \leqslant G, \tag{25}$$

starting with the maximum premium and determining a "premium return" proportionate to the loss saving up to the allowance for losses in the maximum premium. The premium return factor in this case has of course the value defined by (24). If $G = P$, the condition determining Case (a), the formula (25) reduces to (21a).

The development of the generalized formula in this form is more of theoretical than of practical interest. There are advantages, however, in generalizing the first formulas in the groups (17) and (18) to reflect minimum and maximum limits, thus setting forth the fundamental formula in two parts in such a fashion as to emphasize the premium returns on risks with favorable loss ratios and the surcharges on risks with unfavorable loss ratios, the loss allowance in the standard premium marking the division line between the two groups, as follows:

$$\left.\begin{array}{ll} H \leqslant R = P - C\ (P' - L), & L \leqslant P' \\ G \geqslant R = P + C\ (L - P'), & L > P' \end{array}\right\} \tag{26}$$

The rating procedure could then be phrased:

1. If the risk's losses are less than the loss allowance in the standard premium, the premium reduction below standard is equal to (loss allowance in standard premium less risk losses) × loss conversion factor, the final premium being subject to a specified minimum premium.
2. If the risk's losses are greater than the allowance for losses in the standard premium, the premium surcharge above standard is equal to (risk losses less loss allowance in standard premium) × loss conversion factor, the final premium being subject to a specified maximum premium.

The dual formula (26) suggests a more general formula under which the loss conversion factor for credit risks would differ from the loss conversion factor for surcharge risks. If Ca designate the first and Cb the second of these two factors, then Ca and Cb will be connected by the relation,

$$Ca\ (P's - H's) = \frac{S}{1-T} + Cb\ (G'q - P'q) \tag{27}$$

This generalization has not been deemed sufficiently important to receive separate consideration in the establishment of categories of plans. As an example of its application, however, consider a plan which provides for surcharges up to a limit of K times the standard premium, the surcharge on an individual risk being equal to the losses in excess of the loss allowance in the standard premium, with the tax provision thereon. In such a case,

$$Cb = \frac{1}{1-T},$$
$$G = 1 + K,$$

and Ca is determined from (27). The amount obtained from the surcharge augments the amount available for distribution as a premium return to risks with favorable loss ratios.

As a final illustration of the many possible applications of the premium return concept, the standard premium P could be increased on all eligible risks by applying to it a factor $\left(1+\frac{Y}{P}\right)$, producing $(P+Y)$ as a premium from which to make available reductions to risks with favorable experience. The rating formula would be the same as (25) with $(P+Y)$ substituted for G. The premium return factor C would be determined by formula (22a) with $(P+Y)$'s substituted for P's.

The changes in these respective formulas to reflect Cases (c) and (d) are obvious and the variant formulas need not be given in detail.

Determination of Rating Values

Aside from a loss limitation per claim or per accident, there are four rating values which must be known for the application of a retrospective rating plan to an individual risk. Under formula (1) these are the basic, minimum and maximum premiums and the loss conversion factor; under formula (26) the loss allowance in the standard premium replaces the basic premium. It will be noted that if C is known, the determination of the basic premium is equivalent to the determination of the loss allowance in the standard premium, and vice versa, the two values being related through the equation

$$P = B + CP'$$

We may then confine our attention to a discussion of the determination of B, H, G and C.

If all other elements affecting the rating are known except the four rating values, three degrees of freedom remain and one of the rating values will be dependent upon the choice of the remaining three. These values in the general case vary by premium size, both because of the variation in the excess pure premium ratios by premium size and also because of the variation in the reductions from the standard provisions for expenses.

The case in which C (or Z) is the dependent variable has already received attention under the preceding section, wherein the formulas (24) were developed for the determination of C. It is evident that this value is not directly calculable, since P', G' and H' are dependent upon the choice of C. The loss conversion factor must therefore in the general case be determined by trial-and-error methods. In lieu of (24), a choice of other equations for the testing of trial values of C is available, such as the following, which is expressed so as to facilitate use of the excess pure premium ratio tables:

$$(P-H)-\frac{S}{1-T}=CE(H'x-G'x) \qquad (28)$$

The corresponding formulas for the Cases (a) to (d) are given below:

$$\text{Case (a)}: \quad (P-H)-\frac{S}{1-T}=CE(H'x-P'x) \qquad (28a)$$

$$\text{Case (b)}: \quad (P-B)-\frac{S}{1-T}=CE(1-G'x) \qquad (28b)$$

$$\text{Case (c)}: \quad (P-B)-\frac{S}{1-T}=CE(1-P'x) \qquad (28c)$$

$$\text{Case (d)}: \quad (P-B)-\frac{S}{1-T}=CE(1-Ex) \qquad (28d)$$

Only in Case (d) is the value of C directly calculable. In this case, as could have been deduced immediately from (15d),

$$C=\frac{\frac{S}{1-T}}{Ep}$$

This equation reveals concretely why Case (d) is impossible when the credibility is constant (Class B). For if $Z=K$, a constant, the gradation of expenses will be governed by the following equations derived from the above:

$$\text{Type I}: \quad S=(1+J)\,KEp$$

$$\text{Type II}: \quad S=(J+K)\,Ep$$

Since Ep decreases as the premium size increases, the net expense reduction S would also decrease, with J constant, as the premium increases, a variation which is the contrary of what we know to be proper and which is therefore ruled out of the domain of practicability. The difference between the values of Ep for a small and a large premium size is too great to be offset by any variation in J, for J in practicable application is bounded by the limits

$$0\leqslant J\leqslant\frac{F+Vr+Dr}{E}$$

If the credibility is variable (Class A) and is independent of the other rating values, any law for its determination can be imposed so long as within its limits of variation, 0 and 1.00, it does not decrease as the premium size increases; that is, Z must be a monotonic increasing function of P. As an illustration, the credibility could be determined in accordance with the formula familiar in the experience rating plans,

$$Z = \frac{P}{P+K}$$

where K is an arbitrary constant.

Theoretically the credibility could be introduced on a one-split or multisplit basis, as is done in the prospective rating plans, but because of the imposition of the minimum and maximum premium limitations an accurate determination of the loss provision in the basic premium would be extremely difficult if not indeed impossible. This and other generalizations of the loss conversion factor are discussed briefly in Appendix C.

The practical determination of the basic premium from the other rating values is subject to a trial-and-error procedure because the mathematical forms of the functions

$$Lx = f\ (L, P)$$

and

$$L = g\ (Lx, P)$$

are so complex as to "defy computation" (as the small-town plumber advertised his work to do). This matter is discussed at length in Appendix B. Probably the simplest procedure is to test trial values of B in the following equation until the desired value of Dr is produced:

$$\left.\begin{array}{l} \text{Type I: } Dr = (1-T)\,B - Vr + W - \\ \qquad\qquad (1+J)\,E(1-Z) - (1+J)\,Z\,(G'p - H's) \\ \text{Type II: } Dr = (1-T)\,B - Vr + W - E\,(1-Z) - (J+Z)(G'p - H's) \end{array}\right\} \quad (29)$$

If the loss allowance in the standard premium replaces the basic premium as a rating value, it is feasible in the general case to calculate B from the trial value of P' and test it by the procedure just outlined. In some of the restricted cases, however, a more direct procedure is available. For example, under Case (c), the value of $P's$ can be determined directly from (28c), and the value of P' obtained from $P's$ by trial and error, through the relationship

$$P's = P' - E + EP'x$$

Of course, if any great number of calculations for a given state were being made, a table of values of $P's$ corresponding to given values of P' could be computed and P' obtained by inverse interpolation in such a table. An abbreviated table of this nature is included in Table I. For workmen's compensation, however, more than twenty such tables would be necessary, and their construction is so laborious as to be impractical. By the table-entry procedure explained in Appendix B, one table of excess pure premium ratios can be made to serve for all states (disregarding the effect of experience and benefit levels), but such a simplification is not possible in the case of Lp, Lq or Ls, because the permissible loss ratio enters into the determination of all these functions.

If B, G and C are given, in order to determine H the value of $H's$ may first be calculated by the formula

$$H's = P' - G'q - \frac{\frac{S}{1-T}}{C} \tag{30}$$

derived from (15), and the value of H' corresponding to $H's$ obtained by trial and error, as in the case of $P's$ and P' just discussed. Other formulas are available which may be more convenient for particular instances. But the one given appears to be the simplest for general use. H is then calculated from H' by (5).

If B, H and C are given, G' may be obtained by inverse interpolation in tables of excess pure premium ratios, entering with the value of $G'x$ determined from the formula

$$G'x = 1 + \frac{\frac{S}{1-T}}{CE} - \frac{P' - H's}{E} \tag{31}$$

derived from (15). Then G is determined by (4).

The operation of W as a clearing-house for otherwise untractable odds and ends of expense and contingency elements was described in the introduction to this paper. In the interest of simplicity and economy in rating, the loss conversion factor is rounded as a rule to two decimals; the effect of this rounding is absorbed in the basic premium through the element W, whether the rounding be up or down. In the standard plan, in order to permit one table of basic, minimum and maximum premiums for the facilitation of interstate rating, the loss conversion factor was adjusted in reflection of the differing expense loadings so as to produce no negative contingency balances; this adjustment was balanced by the introduction of the appropriate value of W in the basic premium.

The other rating values are also frequently rounded as a matter of convenience, the effect of the rounding being absorbed by the provision for contingencies.

Variation of Rating Values

For practical application, the limits of variation of the respective rating values B, H, G and C are given by the following inequalities,

$$\frac{Vr + Dr - W}{1 - T} \leqslant B < Rv \tag{32}$$

$$B \leqslant H < Rv \tag{33}$$

$$Rv < G \leqslant K, \tag{34}$$

K being so determined that K' is the lowest loss ratio for which $K'x = 0$. The variation of C is governed by the following limits of variation of J and Z which have already been given:

$$0 \leqslant J \leqslant \frac{F + Vr + Dr}{E} \tag{35}$$

$$0 < Z \leqslant 1, \tag{36}$$

so that

$$0 < C \leqslant 1 + \frac{F + Vr + Dr}{E} \tag{37}$$

The value of Rv, as given by the first of equations (14) is

$$Rv = P - \frac{S}{1 - T}$$

This value is the upper limit of the minimum premium and the lower limit of the maximum premium. If either the minimum or the maximum premium is equal to Rv then

$$H = G = B = Rv$$

The plan is thus in such an event reduced to a guaranteed cost plan, with a discount from standard premium equal to $\frac{S}{1 - T}$ made available to every risk without regard to its loss ratio.

The lower limit of B has been given as equal to

$$\frac{Vr + Dr - W}{1 - T}$$

This limit reflects the assumption that negative values of the insurance charge, I, are not admissible. This assumption is debatable, and as a matter of fact the net insurance charge for certain low premium sizes in some states under the standard plan is negative, the loss saving on minimum premium risks being greater than the excess losses on maximum premium risks. Theoretically the value of B could be less than zero. Thus, if the credibility is 100% and

$$C\ (H's - G'p) > \frac{Vr + Dr - W}{1 - T},$$

B will be less than zero. Such values are not practicable, however, and the lower limit given for B would seem to be reasonable for practical application. This will insure retention of the provision for expenses and contingencies deemed necessary as an irreducible minimum, even if the risk develops no losses. On a very large risk, the provision may be small expressed as a percent of standard premium, with the balance for expenses collected through the factor J, but for risks small enough to produce loss ratios close to zero it is not practicable to include a large proportion of the expense provision other than claim as dependent upon the losses.

These limits of variation are all interdependent in a given case, since the rating values must at all times satisfy (24).

If all conditions other than the determination of the four rating values are assumed to be known, the relative variation of the rating values may be examined through the following equation:

$$B + C\ (G'q + H's) = Rv = \text{constant} \tag{38}$$

It is convenient to examine first the limiting case wherein the premium size is so great that there is no divergence of individual risk loss ratios from the permissible loss ratio. In the original charts of excess pure premium ratios for the workmen's compensation line, such a situation was assumed for a $500,000 risk; for at that time an annual premium of $500,000 lay in the domain of opiate visions. Now, less than a decade later, even larger risks are being written, and the cautious individuals responsible for the newer New York and Massachusetts charts have wisely refused to put to paper their idea of a premium size so fantastically remote as to warrant the assumption of such a state of perfection.

In this limiting case the following values obtain:

Condition	*Lx*	*Lp*	*Lq*	*Ls*
$L < E$	$1 - \frac{L}{E}$	$\text{E} - L$	L	0
$L \geqslant E$	0	0	E	$L - E$

Since in any practicable plan for such a premium size,

$$H' < E \leqslant G',$$

it follows that

$$I = 0$$

and

$$Rv = B + CE,$$

wherein for Type I,

$$B = \frac{Vr + Dr - W + (1 + J)\ E\ (1 - Z)}{1 - T},$$

and for Type II,

$$B = \frac{Vr + Dr - W + E\,(1 - Z)}{1 - T}$$

If the credibility is equal to 100%, as might be expected for such a large risk, B is further simplified to include provisions for expense only:

$$B = \frac{Vr + Dr - W}{1 - T}$$

Variations in H and G do not affect the result so long as the condition given above relating to H' and G' is maintained. An increase in B must be offset by a decrease in C, and vice versa; or B and C vary in opposite directions.

In studying cases other than this limiting case, the following comparative variations of the loss functions for a given premium size are useful. K', as in the discussion of the variation of G, will designate the lowest loss ratio for which $K'x = 0$. Reference to Table I may assist the reader. The expressions for increments may fail of fulfillment by one point in the last decimal place to which the increments are rounded, but are true in principle.

> Lp decreases continuously from E to 0 as L increases from 0 to K', and equals 0 for $L > K'$. (That is, Lp is a monotonic decreasing function of L.)
>
> $Lq = E - Lp$, and therefore increases continuously from 0 to E as L increases from 0 to K', and equals E for $L > K'$.
>
> $Ls = L - Lq$, and increases continuously from 0 to $(L - E)$ as L varies from 0 to K', and equals (L $- E$) for $L > K'$.
>
> $\frac{dLq}{dL} = -\frac{dLp}{dL}$, and is a monotonic decreasing function of L, equal to 0 for $L \geqslant K'$.
>
> $\frac{dLs}{dL} = 1 - \frac{dLq}{dL}$, and is therefore a monotonic increasing function of L, equal to 1 for $L \geqslant K'$.

For a constant increment ΔL, therefore,

$$\Delta Lp + \Delta Lq = 0$$

and

$$\Delta Lq + \Delta Ls = \Delta L,$$

so that ΔLq and ΔLs have the same sign as ΔL, while ΔLp has the opposite sign. Further, if

$$\Delta H' = \Delta G' > 0,$$

$$\Delta H'q > \Delta G'q$$

so that in this case

$$\Delta G'q + \Delta H's < \Delta H'$$

If B and C are constant, $G'q$ increases as G increases; to balance (38), $H's$ must decrease and hence H' must decrease. Therefore H and G vary in opposite directions.

If C and G are constant, and B is increased by ΔB,

$$\Delta H' = \Delta G' = -\frac{\Delta B}{C}$$

But
$$\Delta H' = \Delta(G'q + H's) - \Delta(G'q - H'q),$$
so that
$$C \cdot \Delta(G'q + H's) = -\Delta B + C \cdot \Delta(G'q - H'q)$$
Further,
$\Delta(G'q - H'q) > 0$, since $\Delta H'q$ and $\Delta G'q$ are negative and $|\Delta H'q| > |\Delta G'q|$.
Therefore,
$$\Delta B + C \cdot \Delta(G'q + H's) = C \cdot \Delta(G'q - H'q) > 0,$$

and the equation (38) must be balanced by a decrease in H.

By analogous reasoning, if C and H are constant, B and G vary in opposite directions.

Thus far, the results are clear-cut. Such definiteness is not possible when C is one of the variables. If C is increased by an increment ΔC,

$$\frac{\Delta H'}{H'} = \frac{\Delta G'}{G'} = -\frac{\Delta C}{C + \Delta C}$$

The total increment on the left-hand side of (38) is equal to

$$\Delta C\ (G'q + H's) + (C + \Delta C) \cdot \Delta(G'q + H's)$$

the first term of which is positive and the second is negative. The total increment is then positive, zero or negative according as

$$\left|\frac{\Delta C}{C + \Delta C}\right| \begin{matrix} > \\ = \\ < \end{matrix} \left|\frac{\Delta(G'q + H's)}{G'q + H's}\right|$$

By reason of the nature of the variation of Lx by loss ratio and premium size, and the restrictions placed by common sense upon the rating values, it is probable that the total increment is always positive, to be offset by a decrease in B, G or H. The author has never encountered a case in which this was not true, and after experimenting with a wide variety of cases is convinced that the total increment will be positive for any practicable combination of rating values. The mathematical proof is not possible without a knowledge of the mathematical expression of Lx as a function of L and P.

The relative variations for premium sizes below the limiting case may then be summarized by stating that any pair of the rating values B, C, H and G must vary in opposite directions to maintain a balance in the equation (38). This can be proved in the cases where C is not one of the two variables and is probably true for all practicable combinations of rating values when C is one of the variables.

APPENDIX A

Table of Symbols

(All Symbols except C, J, K, Z and those with subscript "x" may represent either amounts or ratios to standard premium.)

A = adjusted losses $= E(1-Z)+LZ$

B = basic premium

C = loss conversion factor

D = provision for profit and contingencies on manual rate basis

E = expected losses

F = claim expense provision on manual rate basis

G = maximum premium

H = minimum premium

I = net provision for excess losses unmodified by credibility (see p. 295)

J = loss multiplier reflecting those provisions for expenses, profit and contingencies which are functions of the losses, equal to $\frac{F+W}{E}$

K = any constant

L = actual losses

P = standard premium

R = final premium

S = reduction in the provisions for commissions, expenses other than claim and taxes, and profit and contingencies under the plan
$= V - Vr + D - Dr$

T = provision for taxes

V = provision for expenses other than claim and taxes on manual rate basis

W = provision for items other than claim included in the plan through the multiplier J

Z = credibility

Prime (′) attached to a premium symbol indicates the allowance for losses in that premium under the plan. Thus, G' designates the allowance for losses in the maximum premium.

The subscript "r" designates the provision for a particular item in the retrospective rating plan; in this paper it has been found necessary to attach such a subscript only to the two symbols D and V.

The subscript "v" designates the average value of the item bearing the subscript for the size of risk being discussed. Thus, Rv = average final premium for the particular size of risk.

A loss ratio symbol with the subscript "x" attached designates the ratio to total losses of losses in excess of that loss ratio on every risk for a given premium size, i.e., the excess pure premium ratio corresponding to the loss ratio bearing the subscript.

A loss ratio symbol with the subscript "p" attached designates the average amount of losses in excess of that loss ratio on every risk of a given premium size. It will be noted that $Lp = ELx$.

A loss ratio symbol with the subscript "q" attached designates the average amount of losses up to and including that loss ratio on every risk of a given premium size. It will be noted that $Lq = E\,(1 - Lx) = E - Lp$.

A loss ratio symbol with the subscript "s" attached designates the difference between the losses which will produce that loss ratio and the average losses up to and including that loss ratio on every risk of a given premium size. Thus, $Ls = L - Lq = L - E + Lp$.

APPENDIX B

The Loss Functions Lx, Lp, Lq and Ls

The excess pure premium ratio, Lx, corresponding to the loss ratio L is a concept familiar to all students of retrospective rating, and enters into the evaluation of the effect of imposing specified minimum and maximum premiums in the plan. The mathematical form of the function

$$Lx = f\,(L, P)$$

has not been determined. The excess pure premium ratios used in developing the standard plan for workmen's compensation risks were determined by graphical methods. As Mr. Dorweiler in his paper at the last meeting has explained,[4] the tables recently constructed in New York, with results close to those obtained some years previously by graphical methods, were based upon the formula (using the symbols set forth in Appendix A)

$$Lx = \left(1 - \frac{L}{E}\right) + \frac{L}{E}\,c^{-P^n}$$

In this equation c and n are parameters calculated for each of fourteen distinct loss ratios by determining log log c and n so as to produce the straight line of closest fit by the least squares method for the equation

$$n \log P - \log\log \frac{L}{Ls} + \log\log c = 0$$

Fourteen values of P were used in this procedure. It may be noted in explanation of the equation given above for determining c and n that

$$\frac{Lx - \left(1 - \dfrac{L}{E}\right)}{\dfrac{L}{E}} = \frac{Ls}{L}$$

The forms of the functions

$$n = f_1\,(L, P)$$

and

$$c = f_2\,(L, P)$$

[4] P.C.A.S., Vol. XXVIII, p. 132.

are extremely complex and are accurately determinable for only those loss ratios marking the limits of the respective loss ratio groups in the experience tabulations. In New York, the formula was used to calculate *Lx* for these loss ratios within certain size groups, the results were plotted against the adjusted average premium for each size group, and the final table was graduated graphically.

This comment is inserted to explain why no attempt has been made in the foregoing analysis to use any expression for *Lx* as a mathematical function of *L* and *P*.

In the construction of a table of excess pure premium ratios, the actual loss ratios used are adjusted to reproduce on the average a definite permissible loss ratio. In the case of the standard table, this permissible loss ratio was taken to be 60%; in New York 59.8% was used. If this permissible loss ratio underlying the table be designated by *Et*, and if *E* be the permissible loss ratio in the state for which the table is being used, the proper procedure in determining *Lx* corresponding to a given loss ratio *L* is to enter the table with the adjusted loss ratio

$$L\cdot\frac{Et}{E}$$

The resulting value of *Lx* is of course multiplied by *E* to give *Lp*. The interpolated value is the same as would be produced by interpolation in a table based upon the same experience data but with the actual loss ratios adjusted so as to reproduce *E* as the average (instead of *Et*).

The symbol *Lp* represents the excess pure premium as a ratio to premium, and may be termed an "excess premium ratio" to distinguish it from an excess pure premium ratio. It is also used to represent the product of the premium *P* by the ratio *Lp*.

The average losses within the loss ratio *L*, designated by *Lq*, are equal to the expected losses less the losses in excess of the loss ratio *L*.

The average loss saving within the loss ratio *L*, or *Ls*, is equal to *L* — *Lq* and is therefore the difference between the total possible losses and the average losses within the loss ratio *L*.

Thus,

$$Lp + Lq = E$$
$$Lq + Ls = L$$

All of these symbols are in reality abbreviations for loss summations for a given premium size. To express them as such, let *n* represent the total number of risks of a given premium size; further, let the summation extend over only those risks on which the total risk losses are at least as great as the lower of the two summation limits, and include on each such risk only that portion of the losses actually lying within the summation limits. Thus, $\sum_{L=H'}^{G'} L$ indicates a summation extending over every risk incurring a total loss ratio not less than H', with only that portion of the losses in excess of H' but not greater than G' included in the summation. If P were equal to \$10,000, H' equal to 20% and G' equal to 80%, no risk would be included unless its total losses were equal to at least \$2000; if its losses were between \$2000 and \$8000 it would contribute to the summation the excess of its risk losses over \$2000; if its losses were greater than \$8000 it would contribute \$6000 (or \$8000 — \$2000) to the summation. It should be noted that since n equals the total number of risks of the given premium size, it is not equal to the number of risks actually contributing to the summation unless the lower limit of summation is zero. With these conventions, we may write:

$$G'p = \frac{1}{n} \sum_{L=G'}^{\infty} L$$

$$G'q = \frac{1}{n} \sum_{L=0}^{G'} L$$

$$H's - \frac{1}{n} \sum_{L=0}^{H'} (H' - L) = H' - \frac{1}{n} \sum_{L=0}^{H'} L$$

$$H'p - G'p = G'q - H'q = \frac{1}{n} \sum_{L=H'}^{G'} L$$

$$G's - H's = G' - H' - \frac{1}{n} \sum_{L=H'}^{G'} L$$

$$G'p + H'q = E - \frac{1}{n} \sum_{L=H'}^{G'} L$$

$$G'q + H's = H' + \frac{1}{n} \sum_{L=H'}^{G'} L$$

APPENDIX C

Generalized Loss Conversion Factor

In the general class which includes both Types I and II as special cases, the expenses which are reflected in J vary in part with the total risk losses L, and in part with the ratable risk losses ZL.

$$C = \frac{Ja + Jb \cdot Z + Z}{1 - T}$$

with

$$J = Ja + Jb,$$

$$Ja = \frac{Fa + Wa}{E},$$

and

$$Jb = \frac{Fb + Wb}{E}.$$

The provision for losses with expenses dependent thereon to be included in the basic premium is then equal to

$$\begin{aligned}&(1+J)\,E-(Ja+Jb\cdot Z+Z)\,(G'q+H's)\\ &=(1+Jb)\,E\,(1-Z)+(Ja+Jb\cdot Z+Z)\,I\end{aligned}$$

where I is defined by (9). The general form of (7) becomes

$$B=\frac{Vr+Dr-W+(1+Jb)\,E\,(1-Z)+(Ja+Jb\cdot Z+Z)\,I}{1-T},$$

and the corresponding change in (8) is apparent.

If $Ja=0$ these equations reduce at once to the formulas derived for Type I; if $Jb=0$, they reduce to the Type II formulas.

Clearly, with due regard to the significance of C, virtually all of the formulas and discussion in the main body of the paper are valid for this general case. The important exception is found in the formulas (23) for the determination of Z:

$$\text{Case (a):}\quad Z=\frac{S}{(1+Jb)\,(P's-H's)}-Ja$$

$$\text{Case (c):}\quad Z=\frac{S}{(1+Jb)\,P's}-Ja$$

$$\begin{aligned}\text{Case (d):}\quad Z&=\frac{S}{(1+Jb)\,Es}-Ja\\ &=\frac{S}{(1+Jb)\,Ep}-Ja\end{aligned}$$

It was noted in the section on "Determination of Rating Values" that theoretically the credibility could be introduced on a one-split or on a multi-split basis, as is done in the prospective rating plans. Because of the imposition of the maximum and minimum premium limitations an accurate determination of the loss provision to be included in the basic premium would be extremely difficult if not indeed impossible. The difficulty is apparent upon consideration of the simplest case, a one-split plan with no minimum premium specified other than the basic premium. If the subscript n designate normal, and the subscript e excess, in accordance with the customary nomenclature and symbolism, we may write

$$G=B+Cn\,G'n+Ce\,G'e$$

wherein Cn and Ce differ only to the extent of the differing credibilities reflected in them. But for given values of G, B, Cn and Ce, this equation is still indeterminate as respects the two unknown quantities $G'n$ and $G'e$, and there are an infinity of possible pairs of values for these two loss allowances to be considered in determining the loss provision in B; the relationship within each pair would vary moreover with variations in the credibilities.

If $Ce = 0$, the problem reduces to the one discussed in the paper in which the losses reflected in the rating are subject to a specified limiting amount per claim or per accident.

If Zn and Ze are both constant, for example if it should be desired to assign 100% credibility to the normal portion and 50% credibility to the excess portion of the losses, a table of excess pure premium ratios could be constructed corresponding to the loss ratio represented by the sum

$$Zn\, Ln + Ze\, Le$$

on each risk. A separate table would have to be constructed, i.e., a separate experience tabulation made, for each pair of values Zn and Ze if more than one pair were to be used, and in general the procedure would involve too much labor to be worthwhile unless it were definitely known in advance that a certain pair of credibilities would in fact be used. The New York table with losses limited to $10,000 per claim for medical and indemnity combined[5] represents such a table with $Ze = 0$. In this case, with $Ze = 0$, the value of Zn in any plan based on the table is not restricted to a constant.

[5] P.C.A.S., Vol. XXVIII, p. 312.

TABLE I
Table of Values of *Lp*, *Lq* and *Ls* for Selected Loss Ratios and Premium Sizes
Workmen's Compensation Standard Table
Permissible Loss Ratio = 60%

L	$1,000			$5,000			$10,000			$25,000			$50,000			$100,000			$250,000		
	Lp	*Lq*	*Ls*	*Lp*	*Lq*	*Ls*	*Lp*	*Lq*	*Ls*	*Lp*	*Lq*	*Ls*	*Lp*	*Lq*	*Ls*	*Lp*	*Lq*	*Ls*	*Lp*	*Lq*	*Ls*
.05	.568	.032	.018	.556	.044	.006	.551	.049	.001	.550	.050	—	.550	.050	—	.550	.050	—	.550	.050	—
.10	.537	.063	.037	.512	.088	.012	.503	.097	.003	.501	.099	.001	.500	.100	—	.500	.100	—	.500	.100	—
.15	.510	.090	.060	.470	.130	.020	.457	.143	.007	.453	.147	.003	.452	.148	.002	.451	.149	.001	.451	.149	.001
.20	.486	.114	.086	.433	.168	.032	.414	.186	.014	.409	.191	.009	.405	.195	.005	.403	.197	.003	.402	.198	.002
.25	.466	.134	.116	.398	.202	.048	.373	.227	.023	.367	.233	.017	.361	.239	.011	.355	.245	.005	.353	.247	.003
.30	.448	.152	.148	.368	.232	.068	.337	.263	.037	.329	.271	.029	.322	.278	.022	.311	.289	.011	.307	.293	.007
.35	.432	.168	.182	.343	.257	.093	.307	.293	.057	.295	.305	.045	.284	.316	.034	.268	.332	.018	.262	.338	.012
.40	.417	.183	.217	.318	.282	.118	.280	.320	.080	.263	.337	.063	.249	.351	.049	.227	.373	.027	.218	.382	.018
.45	.404	.196	.254	.295	.305	.145	.253	.347	.103	.233	.367	.083	.215	.385	.065	.189	.411	.039	.178	.422	.028
.50	.391	.209	.291	.275	.325	.175	.230	.370	.130	.205	.395	.105	.182	.418	.082	.154	.446	.054	.142	.458	.042
.55	.379	.221	.329	.257	.343	.207	.209	.391	.159	.179	.421	.129	.153	.447	.103	.123	.477	.073	.109	.491	.059
.60	.368	.232	.368	.241	.359	.241	.189	.411	.189	.156	.444	.156	.127	.473	.127	.096	.504	.096	.082	.518	.082
.65	.358	.242	.408	.226	.374	.276	.172	.428	.222	.136	.464	.186	.105	.495	.155	.075	.525	.125	.059	.541	.109
.70	.348	.252	.448	.212	.388	.312	.155	.445	.255	.119	.481	.219	.088	.512	.188	.058	.542	.158	.041	.559	.141
.75	.339	.261	.489	.200	.400	.350	.142	.458	.292	.106	.494	.256	.074	.526	.224	.044	.556	.194	.027	.573	.177
.80	.331	.269	.531	.189	.411	.389	.130	.470	.330	.094	.506	.294	.062	.538	.262	.032	.568	.232	.016	.584	.216
.85	.323	.277	.573	.179	.421	.429	.119	.481	.369	.085	.515	.335	.053	.547	.303	.024	.576	.274	.009	.591	.259
.90	.316	.284	.616	.169	.431	.469	.111	.489	.411	.076	.524	.376	.046	.554	.346	.017	.583	.317	.004	.596	.304
.95	.309	.291	.659	.158	.442	.508	.103	.497	.453	.069	.531	.419	.039	.561	.389	.013	.587	.363	.001	.599	.351
1.00	.303	.297	.703	.149	.451	.549	.096	.504	.496	.063	.537	.463	.032	.568	.432	.008	.592	.408	—	.600	.400
1.05	.296	.304	.746	.140	.460	.590	.089	.511	.539	.057	.543	.507	.028	.572	.478	.005	.595	.455	—	.600	.450
1.10	.290	.310	.790	.131	.469	.631	.082	.518	.582	.052	.548	.552	.023	.577	.523	.002	.598	.502	—	.600	.500
1.15	.284	.316	.834	.122	.478	.672	.076	.524	.626	.047	.553	.597	.020	.580	.570	.001	.599	.551	—	.600	.550
1.20	.278	.322	.878	.114	.486	.714	.070	.530	.670	.042	.558	.642	.016	.584	.616	—	.600	.600	—	.600	.600
1.25	.272	.328	.922	.106	.494	.756	.065	.535	.715	.038	.562	.688	.013	.587	.663	—	.600	.650	—	.600	.650
1.30	.267	.333	.967	.097	.503	.797	.060	.540	.760	.034	.566	.734	.009	.591	.709	—	.600	.700	—	.600	.700
1.35	.262	.338	1.012	.089	.511	.839	.056	.544	.806	.030	.570	.780	.006	.594	.756	—	.600	.750	—	.600	.750
1.40	.256	.344	1.056	.082	.518	.882	.051	.549	.851	.026	.574	.826	.004	.596	.804	—	.600	.800	—	.600	.800
1.45	.251	.349	1.101	.076	.524	.926	.047	.553	.897	.023	.577	.873	.002	.598	.852	—	.600	.850	—	.600	.850
1.50	.246	.354	1.146	.070	.530	.970	.043	.557	.943	.019	.581	.919	.001	.599	.901	—	.600	.900	—	.600	.900

BUDGETING BY CASUALTY INSURANCE COMPANIES

BY

WILLIAM F. DOWLING

Budgeting was a term commonly understood to apply almost exclusively to the system employed in controlling governmental appropriations and expenditures prior to 1921. Since then, however, each year has seen an ever increasing use of such a plan of contrõl applied to practically all sizable business undertakings.

A recent survey of casualty insurance companies indicates that comparatively few companies have adopted any plan of forecasting their premium income and the expenses which may have to be paid from such income. A questionnaire was sent by mail to the presidents of fifty representative stock and mutual casualty companies with home offices located throughout the United States. Answers and explanatory letters were received from twenty-five companies. Personal visits were made to four of the largest companies in the field. The tabulation shown below indicates the degree of interest exhibited:

	Number of Companies	Per Cent
Expenditures fully planned by budgetary control involving prognostication of income	10	34.5
Expenditures for certain items such as salaries controlled by previous budget estimates, but no tie-in to income...	4	13.8
Expenditures carefully analyzed by departments compared with previous years' expenses but not based on previous estimate or in any way controlled by income	6	20.7
Expenditures recorded but no attempt made to control by comparison or by a definite break-down by departments.	9	31.0
	29	100.0

The officials of the companies that use a budget system are very enthusiastic about the subject and intimate that greater study and use of this method of control should be inaugurated.

Several companies limit their budget activities to a few special accounts—the most important of which is the salary account. It has been the general practice of most companies, however, to be satisfied with a tabulation and comparison of expense items disbursed in one year or part of a year against the same expense for the previous year or part of such year. The comparative percentage of such items to premiums written in each such period is the only other consideration. If a given expense has increased over the previous period investigation is made to find thė cause and steps are taken to remedy the situation in the following year. If the current year happens to be one in which premium volume is rapidly increasing, the chances are that the excess percentage of the previous year will be forgotten in the hope that the increased income will bring about a more normal ratio. Sometimes the comparison is made against the published percentages of various items of expense incurred by other companies of a similar size and kind. There is no control involved in such methods. Under a budgetary plan the predetermined totals of expense properly segregated are to be compared with the actual amounts as the disbursements are made. Comparison of the actual expenditures and their predetermined relation to income is also made, thereby permitting the management to make prompt adjustments in items which prove to be out of line.

The insurance business is today going through a period calling for the greatest control possible for fitting expenses within the premium income. The cost of underwriting insurance is increasing constantly, due to the closer inspections necessary, because of broader coverages granted, and because of the many new forms to be sent to the insureds and returned to the company. A greater number of reports and individual filings must be made with rating boards, insurance departments and bureaus of many kinds. The vast number of certificates to be filed for the benefit and convenience of the policyholders also adds to the operating costs. The increased use of competitive methods of underwriting such as are involved in retrospective rating and graduation of expense loading in writing workmen's compensation policies has a very definite effect in boosting costs. The new war department cost-plus-a-fixed-fee basis of writing workmen's compensation, automobile and public liability coverage on defense projects involves a new departure from the old way of doing things in the insurance business.

The possibilities involved in this move may have a greater significance than was at first intended. In a recent speech Payne H. Midyette, president of the National Association of Insurance Agents, called attention to the following quotation of the Superintendent of Insurance of New York:

> "The plan has obviously been devised during a period of emergency and is intended to be applied to particular situations where the Government comes into the picture by reason of cost-plus contracts. But it is possible that this plan though born of emergency, has some valuable features which may be generally acceptable when the emergency is over. It may lead to the simplification of the methods of writing insurance at reasonable costs for large risks involving multiple operations under a unified control and supervision."

All of these changes involve greater cost to the insurance company without, in many instances, the benefit of any additional income. This means ultimately that a smaller portion of the premium dollar reaches surplus through profit, unless new means are found for greater control of that part of the premium dollar disbursed for expenses. This can be achieved through a more absolute control of such expenditures by the effective use of a budget.

Budgeting in this day is considered to be a scientific plan of operation and control of a business by means of checking vision, imagination and planning for the future against the experience of the past with a predetermined profit as the ultimate goal. While this goal is the objective, the establishment of a budgetary system is an influence toward good organization and coordination. It is not intended as a panacea for all the ills of an insurance company; neither is it meant as a substitute for efficient administration and good management, but should go a long way toward increasing the effectiveness of an alert and capable supervision. It should stimulate the activities of the executives charged with fulfilling a predetermined task by creating a desire in each to do his part in maintaining the pace and of attaining the goal.

Gerard Swope recommends four necessary steps in planning a budgetary system:

1. Analyze
2. Organize
3. Deputize
4. Supervise

The need for a plan of control has been outlined in the previous pages. Analysis involves study of the size of the organization as to premium income, number of policies issued, kinds of insurance granted and the number of employees. The scope of the plan will be determined largely by the possible amount of savings as compared to the cost of operating the system.

Before actual organization of the detailed operations necessary to establish a budgetary plan, it is of primary importance that the chief executive of the company be made fully acquainted with the essentials of the plan—its organization and particularly the responsibility he is expected to assume in its proper administration. The scope of the plan, its expected accomplishments and the outline of responsibilities to be given to each executive, charged with authorizing the disbursement of the company's money, should be fully discussed. The wholehearted endorsement of the plan by the chief executive is essential and he must assume full responsibility for final approval of all estimates when submitted as a complete budget. He must be convinced of the necessity of adhering to the agreed figures. Any exceptions must be fully justified by reason of commensurate changes in the forecast of income or causes unforeseen at the time of preparing and approving the original budget. Such deviations as are justified should be sanctioned by him, only after satisfying himself of the legitimacy of the reasons given for the changes.

The next and very important move is to appoint a capable individual to engineer the entire program through all of its difficulties. That person must be one fully qualified with a genuine knowledge of the business and the activities of the various departments; a person whose opinions and judgment are fully respected by the chief executive and all those executives with whom he must deal on budgetary matters; one who can sell the idea of 100% cooperation to those executives who will be charged with the responsibility of attaining the income forecast and of maintaining the company's operating cost within the approved amounts. This individual should be one well versed in economics and financial affairs in a general way and in particular where they involve his company; he should be trained in accounting and costs and be capable of discerning the trends in business in general and their relation to his company. Usually these qualifications are found in the Comptroller of the company, who should be designated as the Director of the Budget. The word of such director should be the law of the company on all budget matters.

To guard against injustice and domination, one of several methods of appeal should be established. One plan is to have the director consider and discuss each department's budget proposal directly with the department executive. All items not fully agreed upon are to be submitted to the chief executive for his ruling. The chief will be expected to review all angles of the items in dispute before making his decision. Another plan is to have the Director of the Budget make preliminary checks on all proposals and then submit his total estimates and report of items eliminated to a committee composed of all responsible department executives. A majority vote of such committee would be necessary to overrule a decision of the director. Full reports of such meetings are presented to the chief executive when the final form of the budget is submitted to him for his approval. A third plan is to have the chief executive preside at meetings of department executives where he may make known his attitude on items under discussion.

The focal point of any budget system is the medium through which sales are controlled, whether the business is conducted on an agency basis, through branch offices, or through direct salesmen. Therefore, in order to arrive at a practical, estimated forecast of premium income for the next year it is essential that the following information be accumulated and set up in a comprehensive form:

1. Tabulate the premium income and number of policies written in each calendar year for the past five years, segregated by lines of insurance. If practical, these data should be shown by quarters within each year.
2. The information accumulated for No. 1 should be further divided so as to indicate the number of policies and the original premium on such policies in the first calendar year for each year of issue. Show the net change in such premiums caused by endorsements or cancellations in subsequent calendar years separately.
3. The premium and number of policies relating to each year of issue should be further sub-divided to provide a study of the new and renewal business.

4. It is necessary to show the percentage relationship of each of the above divisions to the whole amount for each calendar year.
5. If the company specializes in covering the insurance requirements of a small number of major industries, the premium income should (if the statistical setup permits) be tabulated for such industries.
6. In the lines of business subject to payroll audit adjustments, the premium should be so arranged as to indicate separately the amount of advance deposit premium and the premium developed subsequently by audit.

The information outlined in 1 to 6 above may be set up for each kind of insurance, for each year of issue, on Form I attached. The big task will be to compile this information for the five years just prior to the inauguration of this system. In subsequent years, the oldest year of the five-year period may be dropped and the current year's figures added to the previous compilation.

A recapitulation of the information shown for each year on Form I by kinds of insurance should be made for the five-year period next preceding the year under study. Such a summary will aid in determining the average annual income by kind of insurance and the increase from year to year of the average number of policies written both by renewals and new sales—the average original deposit premium and the subsequent premiums developed by adjustments.

The totals of the five-year summary may then be posted to Form II which will be the basis of the forecast of premium income for the next year. A further study of the general business activities, the wage level and employment indices during those past five years should provide a basis for comparison with a prediction on those factors for the coming year. An analysis of the rate changes during the five previous years should be made and the average percentage of such adjustments calculated and compared with the forecast of the expected change for the next year.

The percentage figure needed to post in column 8 on part 1 and 3 and column 9 on part 2 of Form II will be determined by interpretation of financial, employment, production and wage indices. Consultation should be arranged with those responsible for sales to determine contemplated changes in sales organization; i.e. the number of new agencies, branches or sales positions to be established or relinquished during the coming year, with the resultant change in premium volume. Consideration should be given to the possible effect the contemplated advertising budget will have on increasing next year's premiums. Confer with the Underwriting and Actuarial Departments on the probable effect on premium income which will result from changes in the laws of the various states and which are not fully reflected in the current rates. The New York Motor Vehicle Financial Responsibility Law effective January 1, 1942 is an illustration of such a change that will affect a forecast for 1942. The new discount principle in writing New York workmen's compensation policies with over $1,000 of premium is another example. The War Department cost-plus-a-fixed-fee basis of writing policies covering defense operations must be considered. The possible increase in premium volume from the new comprehensive forms of automobile and public liability policies must also be taken into account. Where a sizable portion of premium comes from a particular industry, the trends and expectations of that group may be obtained from some of the larger policyholders or from their trade associations. The volume of surety premiums has been definitely affected by the ruling of the City of New York eliminating the requirement for completion bonds on contract work.

When all the factors which may effect premium income have been considered, the Actuarial Department should determine the estimated percentage to be applied for the coming year.

During November and December of each year, while the premium income forecast is being prepared, forms III, IV and V should be distributed to each department head. Before these forms are circulated, actual expenses of the ten months of the current year and the full previous year should be filled in by the Budget Department. Those figures, if available, should be given even when the system is inaugurated for the first time.

Before the actual work is begun by the department heads, it is essential to have them thoroughly understand that they are to be charged with the responsibility of maintaining their departments for the entire coming year on the amounts they specify, if finally approved. It is also of particular importance to stress the fact that they are to be held accountable only for the amounts and the items over which they have full power to authorize disbursements. For instance, the head of the Claims Department would not be charged in his budget with the rent of his department, although from a cost standpoint such an item would be chargeable to the Claims Department. The task of contracting for the rental of home office space or of paying taxes and operating expenses of a company-owned home office building ordinarily is assigned to the treasurer or other financial officer. The estimated amounts needed to meet such requirements during the next year are therefore included in that executive's budget. Where the branch office manager has authority to contract for the space the office occupies, his budget must carry that burden. The department executives should also be assured that if they are successful in curtailing their expenses, or if they have not had the need for spending money assigned to them during any portion of the year that such saving will not be taken from them for the purpose of filling in the gap created by the requirements of any other department. Each department should, therefore, operate on its own budget until the final accounting. If added responsibilities are given to a department during a budget period, the proper adjustments should be authorized to meet the new requirements.

In a commercial or industrial enterprise, the main offset to sales in the budget is the cost of production. In the insurance business, the main costs of production are commissions and salaries. The former is a variable item and is, in itself, dependent upon the volume produced, based on the contract arrangements with agents.

The tabulation shown on page 1 indicates that approximately fifty per cent of the companies have a definite budgetary plan of control for salaries. Form III provides for a detailed listing of the personnel by departments. The salaries paid to permanent employees and other data are shown separately from the information required for temporary help. Each executive lists his suggestions for salary adjustments for his department during the coming year. Such requests are usually reviewed by the chief executive, the director of the budget or a committee of the department heads sitting with the chief executive or with the director of the budget. In some of the larger companies a qualified personnel department passes on all proposals for salary increment. Usually a group of executives of such a department is designated as a committee for such purpose. However, each member of the committee is assigned a specified number of departments. It is the duty of that member to review the record of each employee of the department under study, taking into account the length of service, past ratings, progress already made and present rating. Comparison is made of the salary recommended with the standard rates established for the particular type of work which the individual performs.

The committee member will give the department head his detailed reason when he does not approve a requested raise. The department head has the recourse of appeal to the full committee if he is not satisfied with the ruling made by the member. However, such right of appeal is seldom resorted to, where well established job evaluation standards exist.

Some of the casualty insurance companies have undertaken elaborate time studies for various types of work for the purpose of determining the proper distribution of a given cost to the various lines of insurance. Inspection expense, payroll auditing, policy writing and claims adjusting are types covered. The knowledge gained in such investigations should be utilized in preparing a budget. For example, if the number of inspections per policy issued and the average cost of inspections, for each line of insurance, are known from such a time study, it will be an easy task to determine the number of inspectors and the amount required to do the job during the next year. Multiply the number of policies estimated to be written, as shown in Form II, by the average number of inspections per policy. This total multiplied by the average cost of each inspection will give the total cost of all inspections. Divide the total cost by the average pay for inspectors and the result will be the number of men required during the coming year.

Some of the companies have undertaken very comprehensive study for standardization of work and pay for specific types of positions. Clerks are graded and classified and the pay set in accordance with the qualifications exhibited on entering the company's employ and each successive advancement is made on the basis of having the employee meet the requirements set for the next rating.

The following suggestion is made as a possible means of setting up such standards:

> Have each department head submit a resumé of the type of work performed by the individuals in his charge, tell the quantity of work turned in and, if possible, the degree of accuracy required and given in such work; the average speed attained and necessary in operating an office machine; the technical knowledge necessary to perform the work; the type and degree of education required. The length of service of each individual and his previous experience should also be shown as well as the salary record from the date of employment to the date of review. Obtain the opinion of the department head concerning the minimum and maximum pay requirement for each specific job. When such reports have been turned in by all departments, the personnel, financial or budget department should analyze and correlate them. All similar work requirements should be classified and graded. A standard for each class should be established to include the minimum and maximum salary as well as a minimum amount of work required. When standards are first set, the existing pay schedule will vary with the standards in many instances. Where individuals in any classification are apparently paid more than the maximum standard, they should be encouraged to accomplish the requirements of the next grade within a reasonable period of time or accept the pay of the classification to which they have been assigned. All replacements and new positions should be filled in accordance with the standard.

It will be a continuing task of the personnel, or budget department to keep informed as to changes in work requirements and the exigencies of the times regarding basic pay levels, so that prompt recommendations for adjustments may be made to the executives in charge. Consultations on these points may be held with personnel organizations, employment agencies, labor departments, unions, etc. and with other insurance companies.

If in past experience, overtime work has been found necessary, proper provision should be made in the current budget for such costs based on the requirements of the Wage and Hour Law regulations. In some instances the proposed budget includes the approved recommendations for salary increment, while in other cases the preliminary budget is approved, excluding salary adjustments. The reason for the latter plan is, that in many companies, the same department checks and approves the budget and also approves the salary adjustments. If both items are considered at the year end, it is inevitable that delay will occur in the final handling of either one. To avoid confusion, the budget is authorized without the salary changes and then immediately thereafter the salary recommendations are studied. A lump sum is allowed for the approved recommendations for each department and is entered as such on the final budget.

At the bottom of Form IV a summary analysis is made of the detail shown on Form III. The approved salaries for next year are entered in the last three columns of this recapitulation. The top portion of this form gives a complete picture of all costs of operating a department for one year and ten months and the estimated amount to be expended during the two remaining months of the current year together with the forecast for next year. The amounts previously disbursed are filled in by the budget department. The estimated amounts to be paid during November and December of the current year as well as the forecast for the full year ahead are posted by the department making out the form. The allotted amounts are posted by the budget department. Each type of expense shown is self-explanatory, but a brief outline of the basis of allotting each department's portion of such expense is in order.

Auto travel and other travel are expenditures made by members of the department for regular departmental undertakings and usually cause no particular difficulty in being properly classified. Printing and Supplies are charged to the various departments throughout the year on the basis of charge tickets for printed matter and supplies released to an operating department on its requisition upon the Supply Department. Charges for postage, express, telephone and telegraph are based on the breakdown of such items made in records of the mailing department, telephone and stenographic divisions. Supper money is the amount allowed for suppers because of overtime work by employees who do not come within the scope of the Wage and Hour Law. Disbursements made as direct remuneration for overtime work should be considered as part of the salary requirement. Office equipment involves payments made for rental and repair of furniture and equipment as well as the amount paid for new equipment. The remaining items are ordinarily charged only in the budgets of branch offices and need no further explanation. Additional space on the form will permit entering other types of cost not printed thereon, but which are necessary to conduct the affairs of a department such as the Advertising Division. The Central Stenographic cost indicated as the last item in the salary analysis represents that portion of the budget of the Central Stenographic Department which will be charged back to each department to be served during the coming year by the centralized typists and stenographers. It will be necessary, therefore, for each department head to agree with the executive in charge of the budget of the stenographic section on the probable need of his department for stenographic service during the next year. The expense will be apportioned on the estimates furnished so that ultimately the entire cost of that department is absorbed by those departments served. Inclusion of this item in the budget of each separate department is, in a measure, contrary to the rule previously expressed regarding charges to be made only where control is given. The actual money payments are authorized by the head of the stenographers, but that individual may not be in position to control the demands for service by the other departments. Consequently it is logical to put the burden of living within the estimate up to the departments making the demands for service. Such an arrangement should have the tendency to restrain each department from making excessive calls for such help.

The total of non-salary items is added to the salary item to complete the picture of the previous costs and estimates for the future. The form is then ready for study by the Budget Director or those acting under his supervision. It is up to him or his staff to ferret out any paddings or excessive demands in allotting the necessary requirements. This work is a most arduous task when the budget system is in its infancy, because of the lack of accurate experience of the previous years. Each succeeding year that the system is employed, the estimates will represent a greater degree of accuracy when compared with the final results.

Form V is a supplement to Form IV, wherein the detail of equipment requirements for the coming year are estimated and carried forward to Form IV.

The budget of the Printing Department should be complete within itself; i.e., it should provide for an estimated income, as well as the expenses necessary to operate it. The executive in charge of the Printing Department budget should therefore consult the budget director or other department heads for the purpose of learning the detailed items included in each department's own estimate of its requirements for printing and supplies. The total of all departmental estimates will equal the estimated income of the Printing Department and will be shown as such on the budget.

The expenses will include all costs to be incurred in operating the plant as if it were a separate and distinct undertaking. However, the costs of raw materials such as supplies and paper would be charged to a memorandum inventory as soon as placed in stock. When stock is withdrawn for processing the memo inventory of raw material is credited. Proper cost records should be maintained so that the ultimate cost of the finished product will be charged to a memorandum of finished stock inventory. Upon delivery of the printed matter or supplies to another department, a charge is made to the account of that department and a credit entered in the account for finished stock inventory. These accounts are maintained in the Printing Department and form no part of the general ledger figures. All disbursements for materials are entered in the general books as an expense at the time of purchase. The only reason for the separate bookkeeping in the Printing Division is to maintain proper control of items entering and leaving the department and to know that the cost of operating the section is as good or better than could be done by purchasing the finished product on the outside.

Where a company operates its own building, a separate budget is drawn up by the officer charged with that responsibility. Form III will be used to detail salaries and wages. Separate forms should account for the forecast of other operating costs separated into three groups: (1) materials and supplies used in ordinary maintenance (2) materials and other costs necessary for alterations and repairs (3) items of maintenance purchased from outside sources, such as electricity, steam, insurance, etc. Record of previous disbursements should be set up in the same arrangement as shown on Form IV and V. The income for such budget will be the amount of rent the company charges against itself for the portion of the building it occupies plus all other rents to be collected from tenants during the next year.

Form IV is returned to each department head for his checking and agreement on the amounts allotted for the next year and is then given back to the Budget Department after the final figures for the current year have been recorded—a copy of the final form similar to Form VI is sent to the various heads and a copy maintained in the Budget Director's office for future reference and checking.

Form VII is filled in each month from information furnished by the statistical department and proper comparison made. Any deviation will be readily discernible and proper explanation called for.

However, it must be borne in mind that many new things are undertaken during a year. Likewise many undertakings which are found necessary at the beginning of a year may be dropped during the year. The budget and planning department should always be aware of these happenings and make the necessary adjustments. Ordinary replacements and additional help should be provided for in the original budget, but extraordinary salary adjustments, due to the exigencies of the times must be taken into consideration in the review and checking.

The departmental budgets do not take into account all of the expenses of an insurance company such as losses, allocated claim expenses, licenses and fees, assessments and dues, commissions, etc., because the control of incurring such expenses does not rest with the company or its executives. Such items, however, must form a part of the complete picture involving the planned percentage of profit. The charges for the items enumerated and others of a similar nature must be shown on a master budget at an agreed average percentage of the estimated premium income. In arriving at an estimate, consideration should also be given to changes in tax rates, new taxes, new activities of the rating boards and bureaus, changes in state requirements such as the establishment of state security funds, etc. The net result of the setup of such a master budget will reveal that part of estimated premium income which will be available for addition to the reserve for losses, unearned premiums and other required reserves. The net remaining balance will be the profit to be earned from the actual operations of the insurance business.

A financial budget may be used as a supplement to the general operating budget. In such a form an estimate of the income earnings from securities, real estate, mortgages, banks and other invested assets will be made. Expenses such as charges for collecting interest and rents, investment counsel fee, vault charges, real estate taxes, etc. will act as an offset against income. All maturities during the next year should be listed for the purpose of informing the financial department of the large cash amounts that will have to be reinvested, if not needed for payment of large obligations which may come due. The probable gain or loss in income as a result of such maturities must be taken into account in the income estimate. Increases or reductions due to amortization will also be taken. Provision must be made for addition to or decrease of a contingent reserve for possible fluctuations of securities.

It cannot be expected that the installment of a budgetary system will be 100% perfect in the first year of its operation. It can be assured, however, that with the exercise of care and discretion, in a few years' time the results will be noteworthy. It will be an extreme satisfaction at the close of the year to compare the allotted figures with the final costs and note, as several companies have, that the payments total ninety-five per cent or more of the estimates. As experience is gained in the handling of a budget, the junior executives should become acquainted with its operations and responsibilities. It is well to make known to all the department heads the percentage of attainment that each has achieved. This is suggested for the purpose of arousing keener interest and introducing a competitive element.

The segregation of expenses paid need not necessarily be the same as used in any of the formal statements to be filed with state authorities but will aid in the preparation of costs by lines of insurance to be reported in the New York casualty experience exhibit and various Schedule W forms filed with other insurance departments.

It was not intended in a paper necessarily limited in size and scope to cover all of the details and refinements possible in a budgetary system. It was intended, rather, as a genuine effort to open up the subject for further interest, study and discussion.

This is the opportune time to win the approval and cooperation of the chief executives of insurance companies. They must realize now that the days when excessive administrative costs may be hidden in rates have gone forever. Budget control is the answer.

FORM I

Analysis of Premiums Written for the Purpose of Budget Forecast

Line______________________________

Year of Issue______________________

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
			NEW BUSINESS						RENEWAL BUSINESS					
Calendar Year	No. of policies written (net)	Total Premium	Number of Policies	Percent of total 3÷1	Deposit Premium	Percent of total 5÷2	Add'l. on Audit	Percent of total 7÷2	Number of Policies	Percent of total 9÷1	Deposit Premium	Percent of total 11÷2	Add'l. prem. on audit	Percent of total 13÷2
1st														
2nd														
3rd														
4th														
Total														
1st														
2nd														
3rd														
4th														
Total														
1st year premiums														
								Summary						
1937														
1938														
1939														
1940														
1941														
Total														
2nd yr. premiums														
1938														
1939														
1940														
1941														
Total														

FORM II

Part 1

Forecast of Renewal Premiums for Year 1942

1	2	3	4	5	6	7	8	9	10	11
Line of Insurance	No. of Policies Written in Current year	Average % Renewed During 5 years	No. of Policies to be Renewed (2 x 3)	Average Deposit Premium 5 years	Average E.P. By Audit on Renewals for 1st Year	Next Year's % Rate Adj. Over or Under 5 yr. Average	% of Trend in Gen. Bus. Over or Under 5 yr. Average	Estimated Aver. Prem. per Ren. next yr. (5+6) (7+8)	Estimated Premium on Renewals (4 x 9)	
A & H										
Workmen's Comp.										
Auto Liab.										
Liab. other										
etc. etc.										

Part 2

Forecast of New Policy Premiums for Year 1942

1	2	3	4	5	6	7	8	9	10	11
Line of Insurance	No. of New Policies Written in Current Year	Average Inc. of Policies written dur. last 5 years	Estimated No. of New Pols. Based on Plans & Trend	Total New Policies to Be Written Next year 2+3+4	Average Dep. on new Pols. 5 years	Average E.P. by Audit on New Policies for 1st year	Next Year's % rate Adj. over or under 5 yr. Average	% of Trend in General Bus. over or under 5 yr. Average	Estimated Aver. Prem. for next yrs. new business (6+7) (8+9)	Estimated Premium on new Bus. 5 x 10
A & H										
Workmen's Comp.										
Auto Liab.										
Liab. other										
etc. etc.										

Part 3

Forecast of Earned Premium on Audit in 2nd Year for Year 1942

1	2	3	4	5	6	7	8	9	10	11
Line of Insurance	No. of new Policies Written in Current Year	Average E.P. on New Pols. During 2nd Year	No. of Pols. Renewed During Current Year	Aver. E.P. on Renewal Pols. During 2nd Year	Average Prem. Earned During 2nd yr. (4+5)	Next Year's % Rate Adj. Over or Under 5 Yr. Average	% of Trend in Gen'l. Bus. Over or Under 5 Yr. Average	Estimated Average E.P. in 2nd Year 6 (7+8)	Estimated total E.P. on New & Rens. 2nd Year	
Workmen's Comp.										
Auto Liab.										
Liab. other										
etc. etc.										

FORM III

Detail of Salary Requirements Budget for 1942

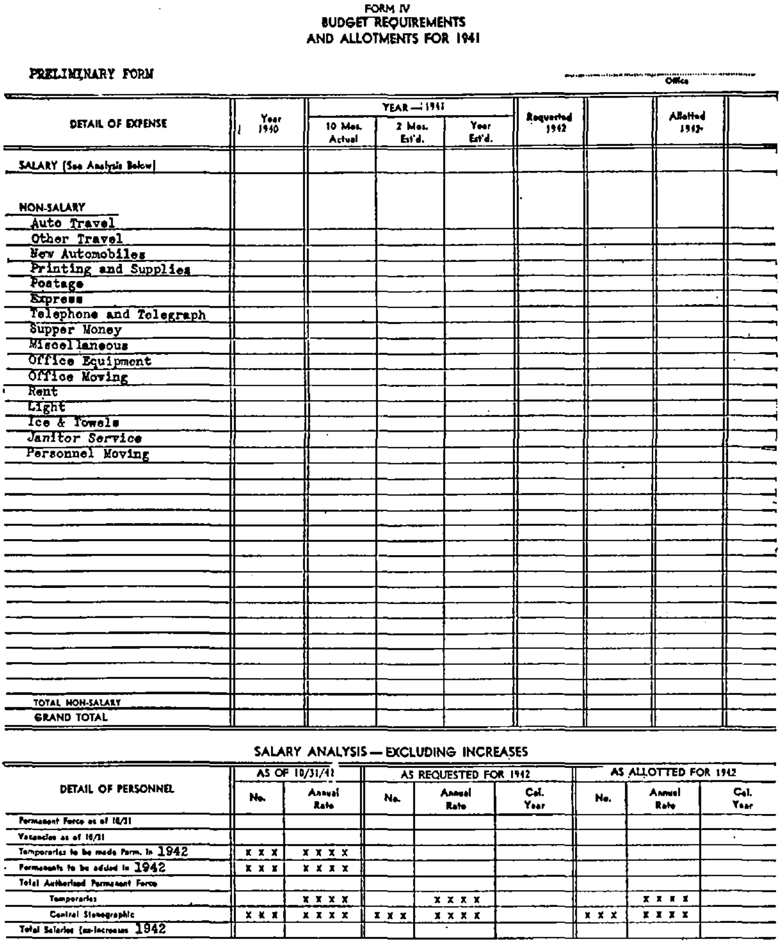
Dept. or Office________________________

Name of Employee	Date Emp.	Class	Dept. Rating#	Paid in 1940	Year 1941			Date of last increase	Request to be effective	Requested 1942		Allotted 1942
					10 mos. actual	2 mos. est'd.	year est'd.			Annual Rate	Cal. year	
Permanent Force												
Temporaries*												
Dismissals												
Resignations												
Retirements												
Total No. Employed	xx	xx	xx									
	x	x	x					x	x			x

#By Dept. Head A. Excellent. B. Good. C. Fair.
*Indicate by *requestfor change in status from temporary to permanent.

Dept. Head________________
Approved________________

Budget Dept.



FORM IV
BUDGET REQUIREMENTS
AND ALLOTMENTS FOR 1941

PRELIMINARY FORM

Office

DETAIL OF EXPENSE	Year 1940	YEAR — 1941			Requested 1942		Allotted 1942	
		10 Mos. Actual	2 Mos. Est'd.	Year Est'd.				
SALARY (See Analysis Below)								
NON-SALARY								
Auto Travel								
Other Travel								
New Automobiles								
Printing and Supplies								
Postage								
Express								
Telephone and Telegraph								
Supper Money								
Miscellaneous								
Office Equipment								
Office Moving								
Rent								
Light								
Ice & Towels								
Janitor Service								
Personnel Moving								
TOTAL NON-SALARY								
GRAND TOTAL								

SALARY ANALYSIS — EXCLUDING INCREASES

DETAIL OF PERSONNEL	AS OF 10/31/41		AS REQUESTED FOR 1942			AS ALLOTTED FOR 1942		
	No.	Annual Rate	No.	Annual Rate	Cal. Year	No.	Annual Rate	Cal. Year
Permanent Force as of 10/31								
Vacancies as of 10/31								
Temporaries to be made Perm. in 1942	x x x	x x x x						
Permanents to be added in 1942	x x x	x x x x						
Total Authorized Permanent Force								
Temporaries		x x x x		x x x x			x x x x	
Central Stenographic	x x x	x x x x	x x x	x x x x		x x x	x x x x	
Total Salaries (ex-Increases 1942								

FORM V

Detail of 1941 Equipment Budget

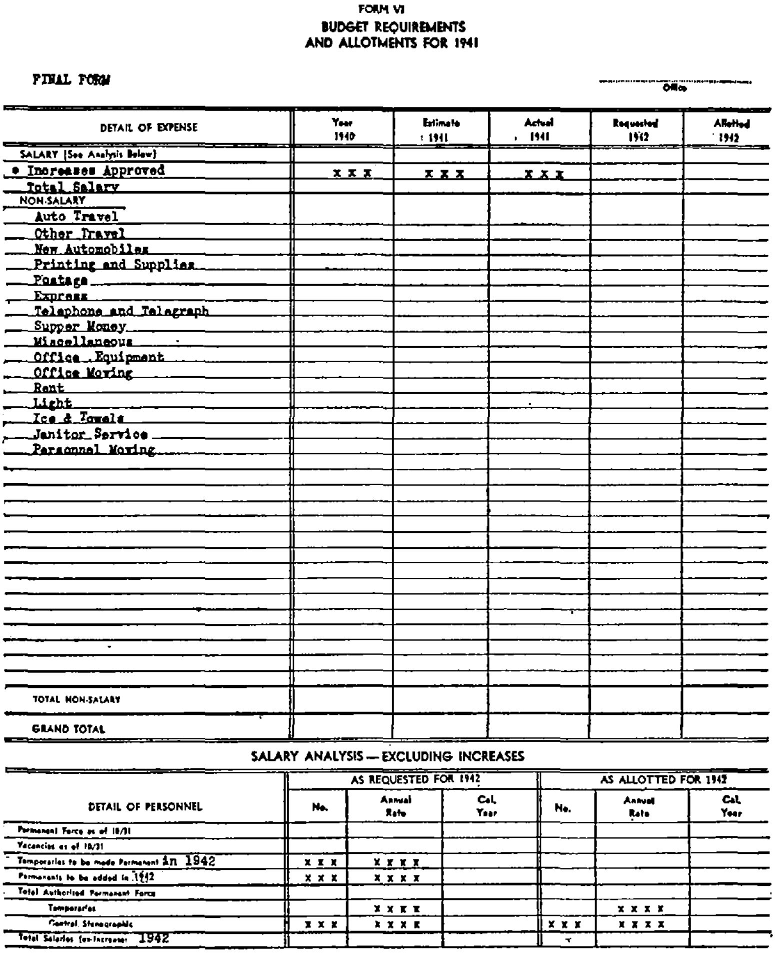
Replacements

	Description of Article to be Replaced—Including Serial Number, Size of Type, Length of Carriage, Age, Etc.	Net Cost to Replace	Remarks
Files			
Typewriters			
Desks			
Chairs			
Tables			
Dictating Mach.			
Rentals			
Repairs			
Total Replacements		$	

Additions

	Detail of Length of Carriage, Size of Type, Etc.	Number on Hand	Number Requested	Net Cost	Remarks
Files					
Typewriters					
Desks					
Chairs					
Tables					
Dictating Mach.					
Rentals					
Total Additions					$

Total Cost of Equipment Requested $__________



FORM VI
BUDGET REQUIREMENTS
AND ALLOTMENTS FOR 1941

FINAL FORM

Office

DETAIL OF EXPENSE	Year 1940	Estimate 1941	Actual 1941	Requested 1942	Allotted 1942
SALARY (See Analysis Below)					
• Increases Approved	x x x	x x x	x x x		
Total Salary					
NON-SALARY					
Auto Travel					
Other Travel					
New Automobiles					
Printing and Supplies					
Postage					
Express					
Telephone and Telegraph					
Supper Money					
Miscellaneous					
Office Equipment					
Office Moving					
Rent					
Light					
Ice & Towels					
Janitor Service					
Personnel Moving					
TOTAL NON-SALARY					
GRAND TOTAL					

SALARY ANALYSIS — EXCLUDING INCREASES

DETAIL OF PERSONNEL	AS REQUESTED FOR 1942			AS ALLOTTED FOR 1942		
	No.	Annual Rate	Cal. Year	No.	Annual Rate	Cal. Year
Permanent Force as of 10/31						
Vacancies as of 10/31						
Temporaries to be made Permanent in 1942	x x x	x x x x				
Permanents to be added in 1942	x x x	x x x x				
Total Authorized Permanent Force						
Temporaries		x x x x			x x x x	
Central Stenographic	x x x	x x x x		x x x	x x x x	
Total Salaries (ex-Increases) 1942						

FORM VII

Monthly Expense and Budget Report

Department

Month

Expense This Month		Kind of Expense	Budget for Year	Cumulative Expense		% Budget Spent To Date
				This Year To Date	Last Year To Date	
		Salary				
		Non-Salary				
	Travel	Auto Travel Regular Travel Department Meetings Personnel Moving				
		Sub-Total—Travel				
	Regular	New Cars Printing and Supplies Postage Express Telephone and Telegraph Supper Money Miscellaneous Equipment				
		Sub-Total—Regular				
	Branch Office	Office Moving Rent Light Ice & Towels Janitor's Service				
		Sub-Total—Branch Office				
		Total Non-Salary				
		Grand Total				

FORM VIII

Master Budget and Allotments—All Departments

	Year 1940	Estimate 1941	Actual 1941	Allotted 1942
Total Premium Income				
Expenses				
Salary				
Non-Salary				
Claim Payments				
Allocated Claim Exp.				
Assessments and Dues				
Commissions				
Licenses and Fees				
Pensions, etc.				
Taxes				
Total Expenses				
Net Income				
Reserve Changes				
Claim Reserves				
Claim Exp. Reserves				
Unearned Premium				
Total Reserve Changes				
Net Profit from Operations				

STATE REGULATION OF INSURANCE RATES

PART II

REGULATION OF RATES AND RATING ORGANIZATIONS

BY

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I. Preliminary Considerations

There is a close inter-relation between various parts of the insurance code, so that it is somewhat difficult to pick out for consideration a particular class of statutory enactments, and leave untouched closely related statutes. Rate regulatory laws definitely include:

(a) *Laws regulating organizations for making and administering rates.*

(b) *Laws requiring rates, rules and rating plans to be filed, made available for public inspection, available for inspection and study by public officials, and requiring companies or rating organizations to give information to persons insured and afford them opportunities to be heard on requests for changes in their rates.*

(c) *Laws designed to secure the adequacy of rates.*

(d) *Laws designed to secure the reasonableness of rates.*

(e) *Laws designed to prevent rate discrimination.*

Closely related statutory enactments are:

(f) *Anti-rebating laws.* This term covers a variety of provisions, generally designed to make the contract of insurance and the premium written therein the entire transaction between the company and its agent on the one hand, and the policyholder on the other. Charging of fees by agents, giving special allowances or favors in matters of premium, or a participating dividend outside the policy's terms, and connecting the policy with collateral transactions which might serve as an inducement to insurance may all be classed as anti-rebating laws. There is a close relation to anti-discrimination laws, and indeed anti-discrimination provisions are often found in the same enactment with anti-rebating provisions.

(g) *Laws relating to policy forms.* Obviously, a rate is a thing having no independent existence; it relates to a particular type of policy. Standardization of policy forms and endorsements or the insertion of standard provisions in policies is essential to any standardization of rates. So, too, the prohibition of particular types of policies or specific policy provisions has a collateral effect on rates.

(h) *Laws regulating the dividends of participating insurers.* Obviously, a participating dividend is a part of the price paid for insurance; the difference between the premium charged and the dividend returned constituting the net cost. The one part cannot be regulated without due consideration of the effect of the other; and it is in consequence a matter of some little difficulty to make regulation of rates for both participating and non-participating carriers upon a strictly uniform basis without doing injury to the one side or the other.

(i) *Laws relating to agents, acquisition cost and commissions.* Acquisition cost is always an important element of the cost reflected in the premium rate. If there is a statutory limit to acquisition cost or commissions, that limit has its effect on rates. It is, moreover, difficult to maintain a uniform standard of rates if there are substantial differences in point of commissions and acquisition cost between carriers affected thereby.

(j) *Laws relating to reserves.* Where, as in case of life insurance, reserves are set up on policies in force with reference to tables designed to measure the hazard undertaken, then the reserve provision has a genuine effect on the premium to be charged, especially if coupled with provisions for setting up deficiency reserves in case of policies written at rates less than the minimum rate indicated by the table. Where reserves, such as the unearned premium reserve or the statutory loss reserves in liability of workmen's compensation are based, either in whole or in part, upon the premium charged, earned or unearned, there is a very close connection between the adequacy of the premium rate and the adequacy of the reserve; and what is done in the way of regulating the rate produces a corresponding effect on the reserve.

The laws here considered include only those listed above as (a), (b), (c), (d) and (e), with some reference to (f). It suffices to indicate that these laws are not separate and distinct from the rest of the laws relating to insurance companies, but linked more or less definitely with many parts of those laws.

This part of the paper properly follows the first part, since the anti-compact provisions were mainly enacted in the last quarter of the nineteenth century, the great bulk of those now to be considered during the twentieth century. Anti-discrimination laws and anti-rebating laws probably antedate the present century; but laws regulating rating bureaus and regulating rates as to adequacy and reasonableness are all relatively modern.

As in the case of much of the insurance law, statutory enactments tend to be directed to specific lines of insurance rather than to be general in type. Anti-rebating laws general in type are common enough; general anti-discrimination provisions somewhat less so; and there are only a very few laws making general regulation of rating bureaus, or undertaking general rate regulation along lines of either adequacy or reasonableness. There is, in the field of fire insurance, a very considerable number of laws relating specifically to the rates for fire insurance, and the bureaus making and administering such rates; those laws occasionally extending to other lines written by fire companies. In the field of casualty insurance, rate-regulatory laws and laws relating to rating bureaus are very common in case of workmen's compensation. Rate-regulatory provisions are increasing in case of automobile liability insurance, and there are specific provisions covering other casualty lines. Life insurance and accident and health insurance very commonly have provisions requiring the filing of manuals and rates, but little or nothing else in the way of rate regulation beyond special anti-discrimination provisions, very common in the case of life insurance, less common in the case of accident and health insurance. The other great insurance field, marine insurance, is very sparingly regulated, the chief instances being the automobile lines of inland marine companies.

In view of this character of the rate regulatory laws, its seems desirable to start with the more common types of law and end with the general laws.

II. Rate-Regulatory Laws Applicable to Fire Insurance and Allied Lines

Rate Compacts.—Whether sinned against or sinning, fire insurance has been, up-to-date, the storm-center of controversy as to insurance rates. The bulk of the anti-trust litigation and a substantial proportion of the anti-compact laws were directed at fire insurance and fire insurance rating operations. Fire insurance was the target of the first genuine rate-regulatory laws and has also been involved in the greater part of insurance rate litigation.

It is not intended to trace the cause of this. The establishment of methods for making rates for fire insurance has given the companies themselves a good deal of trouble, and is not at present completely satisfactory even to all underwriters. In its early history, when methods of communication were a deal less facile than at present, the companies were compelled to give large authority to their local representatives, and the business was underwritten and rated locally. Associations of company representatives began to form at a very early period, for the underwriting of risks and for the discussion of common problems. These were purely voluntary in character, and not all of them were permanent; but certain local associations have had a long and uninterrupted existence; one, in Buffalo, not long ago celebrated its 100th anniversary. Associations of companies were likewise formed from time to time, and among other problems, found the problem of securing adequate rates, and introducing system into rating procedure, one of perennial recurrence. One attempt to standardize ratemaking on a national scale was made in connection with the organization of the National Board of Fire Underwriters, in 1866. The National Board for a time endeavored to introduce uniformity in rating procedure, operating through a national committee with local committees to assist in the work of ratemaking, and a large number of local boards, numbering in 1869, 475. Plans were formed for a regular rating bureau divided into six departments. But in 1877, the dissension from this attempt at centralization proved too great. The National Bureau in that year relinquished its authority over rates, devolving it upon local boards, where such existed, and elsewhere upon the individual judgment and determination of the members.(1)

The "compact system" inveighed against by the anti-compact laws, probably was not this attempt of the National Board, but a development growing out of the chaos resulting from its abandonment. An eminent authority states:

> "It is not generally known that the birth of what is known as the compact system now interdicted by anti-compact laws, occurred at Kansas City 30 years ago, the usage at that time being for local agents in every town of any considerable size to make their rates as best they could through self-appointed committees. The result was that demoralization reigned supreme. Every large town was the center from which rate-cutting, rebating and every other conceivable form of underwriting evil radiated in every direction to smaller towns within 50 to 100 miles. Finally the situation became so intolerable that the agents did not trust each other to make their rates, and there was a petition for relief. A large committee of company officials visited Kansas City and the one thing on which the agents were able to unite was the unanimous request that they be relieved of the responsibility of making their own rates. A compact manager was selected who soon brought order out of chaos. The result of this action was so satisfactory that petitions came from every direction for a similar solution of existing trouble, and in a short time the compact system spread to all parts of the country. It is undisputed history that the compact system originated from the widespread and imperative demand from local agents to be relieved from the responsibility of making their own rates."[2]

The time from which Mr. Dean reckoned his 30 years cannot be identified from the text, but it was unquestionably prior to 1925, the date of the edition from which quotation was made. It is implied, however, that the date

[1] Hardy, Edwin R., "The Making of the Fire Insurance Rate," Chapters XVII, XVIII

[2] Dean, A. F., "The Philosophy of Fire Insurance," Vol. III, P. 24

of the "compact system" so-called, ante-dated the anti-compact laws. The "compact manager" had a real utility, furnished a relief from evils which were felt by companies and agents alike and possibly by insured risks as well. Anti-compact laws were enacted for a portion of the states only, and even of these, some expressly countenanced the use of "common experts," more or less tacitly admitted the use of ratings promulgated by various sources on the understanding that these were advisory only. Thus, in one way or another, rate compacts existed and "common experts" and bureaus, actuarial and otherwise, continued to function.

Rate Regulation.—In 1909, Kansas enacted a law, vesting the Superintendent of Insurance with authority to regulate fire insurance rates.[3]

Briefly, this Act required all fire insurance companies to file with the Superintendent of Insurance general basis schedules showing the rates on all risks insurable by the company in the state, together with all conditions affecting the rates or the value of the insurance to the assured. Changes in schedules on file could be made only upon ten days notice to the Superintendent, unless he permitted filing on shorter notice. The Act contained a strong anti-discrimination provision, and vested the Superintendent with authority to determine whether a rate was excessive or unreasonably high, or not adequate to the safety of the company; and to order the company to publish and file a higher or lower rate, commensurate with the character of the risk.

The influence of this Act is noted in a number of rate-regulatory laws, especially that of Oklahoma. It gave rise to litigation which went to the Supreme Court of the United States on an issue of constitutionality. The Court declared the Act constitutional, indicating that insurance was a business "affected with a public use."[4]

This statute was precursor of a large number of acts enacted during subsequent years. The National Convention of Insurance Commissioners adopted a model law in 1914.[5] A second model act appeared some time between then and 1925.

Apparently this was drawn up by the National Board of Fire Underwriters and there is on record a request made by the fire insurance committee of the National Convention of Insurance Commissioners desiring the presentation of such an act for consideration. The act does not seem to have been presented to the committee or acted on by it or by the National Convention.[6]

[3] Originally Chapter 152, Sessions Laws of 1909. See Appendix I

[4] *German Alliance Insurance Co.* v. *Kansas,* 233 U. S. 389

[5] *Proceedings,* N.C.I.C., Dec. 1914, P. 16

[6] *Proceedings,* N.C.I.C., 1925, P. 35. This contains an elaborate summary of legal provisions, compiled by Mr. R. D. Hobbs
Hardy, Edwin R., *op. cit.,* Chapter LII

Summary of Bureau Laws.—Bureau laws enacted follow the two models more or less, departures from the models tending to increase year by year. The chief variations may be briefly and generally stated as follows:

(1) *Rating Bureaus.*—The original type of law may be termed a permissive law; that is, it provides a means whereby rating bureaus may operate, provided they conform to the law. The succeeding type requires a company to maintain or be a member of a rating bureau, thereby requiring all companies in their ratemaking operations to follow the bureau requirements established in the law. The final type goes a deal further, establishing a single rating bureau of which all companies are required to be members.

(2) *Membership.*—In laws of the first two types it is generally provided that a bureau which serves two or more insurers must admit to membership or extend its services to any insurer authorized to do business in the state. In laws of the third type, this is, of course, unnecessary. Members generally are entitled to a single vote in bureau affairs. The laws make various provisions as to fees and as to apportionment of the cost of running the bureau, the intention being that there be an equitable apportionment. The general method is to apportion costs on the basis of premiums received in the state, with or without certain deductions, such as premiums on risks other than those coming within the scope of the bureau's activity, premiums on policies not taken or cancelled, and, occasionally, dividends of participating carriers.

A very common stipulation inserted in the laws is, that an insurer may not be a member of more than one bureau for the purpose of rating the same risk. This, of course, is unnecessary in a law of the third type.

(3) *Location of Office.*—A number of laws provide for the maintenance by a bureau of a local office; a few emphasize the localization idea by requiring local men on the governing committee or in managerial positions. This, however, is not always done, nor for all companies. Some laws stipulate that the rating bureau shall be located in the United States; a precaution probably superfluous.

(4) *Registration Provisions.*—In laws of the first type and in some of the second type, there is no formal requirement for registration. It is common to provide that insurers shall give notice to the supervisory authority of all bureaus of which they are members, engaged in rating risks in the state, either at the time of applying for license, or when membership is taken out. This is coupled with a power on the part of the supervisory authority to address inquiries as to the organization, maintenance and operation of the bureau. But some laws of the second type require a filing

of all documents pertaining to the organization of the bureau, and require the issuance of a license. A few require licensing of inspectors or raters as well. Laws of the third type have, of course, provisions for setting up the bureau, and most of them have an annual licensing provision also.

(5) *Keeping of Records.*—The most common provision is the requirement for keeping a permanent record of surveys in case of risks written on schedule. Some laws, however, have specific requirements for keeping records of all the bureau's doings, including their financial transactions. This, one would imagine, a bureau would do in any case. The recording may be for the information of the public or for purposes of supervision.

(6) *Public Relations.*—Some laws have elaborate publicity provisions, requiring the maintenance of offices open to the public at all ordinary business hours and the keeping there of an exhibit of all schedules, rates, etc.

(7) *Examination, Visiting and Supervisory Powers.*—All laws have examination provisions. Generally, examination is at the discretion of the supervisory authority, with, very frequently, provisions for required periodic examinations, most commonly once every three years. Occasionally, a law contains provisions as to the authority of examiners to require the production of records and examine officials and employees under oath.

In addition, some laws have specific provisions that the supervisory authority may make inspection of records; and that the offices shall be open at all ordinary hours for the purpose. Occasionally, specific requirement is made that the supervisory authority may be present at all meetings of bureaus and committees. In laws of the third type, special governmental machinery for the constant supervision of the single bureau is set up.

(8) *Rate Filings.*—In laws of the first and second type, the common provision is that supervisory authority may require the filing of schedules, rates, regulations, forms, etc., sometimes limited by the stipulation that surveys and completed schedules shall be required only in case of a complaint. There are, however, in some laws of these types and regularly in laws of the third type, provisions calling for a filing prior to rates, regulations, etc., being put into effect, sometimes coupled with provisions requiring an approval. Generally, the laws require filings in case of deviations from bureau rates.

(9) *Schedule Rating.*—It is generally provided that inspections shall be made on all risks rated on schedule, and a written survey made, which shall be filed as a permanent record, and a copy thereof furnished on request to the assured or owner or his representative. Some laws stipulate that the furnishing of the copies shall be without cost; there are one or two laws which specifically permit a reasonable fee. Some laws recognize the fact

that there are cases where a policy must be issued before an inspection can be made, providing in that case for rating the policy on a tentative survey, to be corrected later.

(10) *Stamping Provisions.*—There are three laws,[7] which require the establishment of regular machinery for inspecting applications and daily reports and determining whether they comply with established rates on file; with provisions for reporting to the supervisory authority all instances where correction of rate irregularities is not promptly made.

(11) *Rate Compacts and Agreements.*—Most of the laws have provisions as to rate compacts, the most common being:

(a) A provision forbidding agreements that all or any part of the insurance on a risk shall be placed with a particular company, insurer or agent, or a particular group of companies, insurers or agents. Sometimes this is qualified by inserting the provision, "except as contained in the policy or in the usual agreement for other insurance."

(b) A provision forbidding agreements with regard to the making, fixing or collecting of any rate for fire insurance on property in the state except in compliance with the Act. This is followed by a provision that such agreements may be made if reduced to writing and filed with the supervisory authority; coupled with a power of disapproval. Sometimes appeals to the courts are provided either from an order disapproving agreements, or from the failure to make such order.

(12) *Deviations.*—All laws have deviation provisions authorizing under restriction departures from bureau rates or rates on file. The common procedure is, the giving of notice to the supervisory authority, and to the bureau concerned, accompanied by a schedule sending forth the deviation, which may be in the basic or key rate, or in the rating schedule itself. The more common restriction is that the deviation shall be uniform throughout the state in its application to all risks of the classification affected. There are, however, laws which limit the deviation to uniform percentage deviations, generally applicable, and it is usually stipulated that such general deviations shall remain in force for an entire year.

It is perhaps more common to permit deviations without requirement of more than this given notice. The supervisory authority, could, doubtless, rule whether the deviation is in compliance with law. The later statutes, however, require deviations to be approved before becoming effective. There are instances where deviations downward are permitted without requiring approval, approval being required, however, in case of deviations upward.

(13) *Discrimination.*—All laws contain an anti-discrimination provision,

[7] Idaho, Oregon and Wisconsin. See Appendix I

generally in the form, "no fire insurance company shall fix or charge any rate for fire insurance upon property in this state which discriminates unfairly between risks in the application of like charges and credits, or which discriminates unfairly between risks of essentially the same hazard, (some laws insert the term 'territorial classification') and having substantially the same protection against fire." Laws which require the filing of rates are very likely to define the departure from rates on file as an unlawful discrimination.

(14) *Removal of Discrimination.*—Practically all laws contain a process for the removal of discriminations by the supervisory authority. The provisions vary not a little in wording, but the substance does not differ greatly. On complaint, and some case on his own motion, the supervisory authority is empowered to give notice of a hearing to all parties concerned, and, on hearing, if he finds that unlawful discrimination exists, may order the discrimination removed, and a rate substituted which is not discriminatory. A court appeal from an order of the supervisory authority is provided, which generally operates as a stay of the order, with a provision for the refunding of overcharges in case the appeal goes against the company or bureau. The chief variations are, (a) a provision found in a number of laws that discrimination shall not be removed by increasing rates unless the supervisory authority finds the increase justified. Some acts stipulate for a specific finding on the point; (b) a provision added in some laws, though more commonly in connection with the provisions for rate regulation, requiring the company appealing from a decision to give a bond or make a deposit to cover the margin between the rate charged and the rate appealed from, in order that the assured may be reimbursed.

(15) *Control of Rates.*—The laws differ greatly in point of the control given the supervisory authority over rates:

(a) A few laws stop at the point of control over discriminations.

(b) The most common type of rate control is an authority to order general rate changes. Provision is made for annual returns of underwriting experience within the state, and a compilation of such experience, generally for a term of five years. If for a five year period, the companies show an aggregate underwriting profit in excess of what is reasonable (a few laws mentioning the figure of 5%), the supervisory authority may order rates reduced to a point which shall yield the company no more than a reasonable profit. Some laws require the supervisory authority to take cognizance of the conflagration hazard, within or without the state.

There is some variation in the laws as to procedure after order. Some laws permit the companies or bureaus to distribute the reduction; others require the distribution to be submitted for approval. There are instances where the supervisory authority is empowered to make the distribution.

Generally the laws provide for appeals as in the case of orders for removal of discrimination, with the same variation as there noted as to whether there shall be merely a general provision requiring the reimbursement of the assured for overcharges, or whether this shall be complemented by provisions for a bond or deposit. Rate changes are ordinarily applied to policies written subsequent to the order, not to policies in force.

Some laws provide for a revision upward as well as downward, but these are the exceptions.

(c) Some laws provide a method of control addressed to specific rates, complained of as unfair or excessive, similar to the methods for correction of discriminations, and occasionally inserted in the same section.

(d) Some laws, especially the third type, have the provision common in compensation rating laws, requiring rates to be filed and approved before going into effect.

The last three methods all are effective methods of rate control; type (b) is the most common, but types (c) and (d) sometimes appear in the same law with type (b).

(16) *Additional Provisions.*—Occasionally the laws contain specific provisions as to rates, rating methods and the like. Anti-rebating provisions occasionally find their way into a law. Provisions as to policy forms are sometimes included.

(17) *Exceptions.*—A law of the first type is elastic enough not to require exceptions. Laws of the second and third types, being compulsory in nature, very commonly are coupled with exceptions, either as to companies, whose way of doing business accords ill with the statutory model, or as to types of risks which for one reason or another should be excluded. The stiffer and more rigid the law, the greater the need for exceptions.

The types of companies most frequently excepted are mutual companies, more commonly local companies, or companies doing business on the cooperative plan. Reciprocals are excepted from some laws. Essentially, the bureau laws are written with reference to stock companies, and assort somewhat oddly with the rating methods of participating carriers.

The types of risk most commonly excepted are:

(a) Property protected by automatic sprinklers and insured in connection with an inspection service.

(b) Rolling stock of railroad companies.

(c) Property in transit, while in possession of railroad companies or common carriers.

(d) Property of common carriers, used or employed in business of carrying freight, merchandise or passengers.

(e) Insurance upon or in connection with marine or transportation risks or hazards.

The reason for the last four of these exceptions is obvious; they are properly interstate in character and touch on a field closely related to or a part of marine insurance. The first exception touches on a field where there is real competition. One law, that of South Carolina, permits variation of the standard rates to the point needed to meet competition with a non-admitted carrier; a general provision quite in line with the practice as to differentials of common carriers by railroad.[8]

(18) *Application to Lines of Insurance other than Fire.*—The greater part of the laws apply to insurance against the hazard of fire, or fire and lightning; some laws, however, extend to other lines written by fire companies, and in view of some statutory definitions of fire insurance, it is not always safe to rely too confidently on the wording of the law. There are, indeed, acts which extend outside the fire field. Windstorm, tornado, hail and motor vehicle insurance are the lines most often mentioned.

In addition to the bureau laws, there are, in some states, laws regulating the rates of fire companies, which have no reference to bureaus. Most notable of these is the law of Texas, where the process of ratemaking has been assumed by this State. The other laws are of briefer type, and less radical; though there are those who consider all rate regulation radical.

Attempt is made in appendix I to give a brief description of the rate regulatory provisions, other than the more general anti-rebating and simple anti-discrimination provisions, applying specifically to fire insurance.

It seems unnecessary to dwell in detail on more than the rate-regulatory provisions of these laws: the rest may be dealt with somewhat generally and summarily. When a state is omitted, it is generally the case that there is in this state an anti-discrimination, anti-rebating or other law more or less generally applicable: these are listed in appendix V. It is intended to cover in appendix I merely laws providing for administrative regulation dealing with fire insurance either generally or specifically.

COMMENTARY

In General.—Commentary on this great mass of legislation can hardly be made in great detail. The notable feature is the predominance of bureau laws, and the evidence therein of a close connection with the anti-compact movement. The earlier laws were permissive in character, and were regarded

[8] *10 Corpus Juris* Sec. 760, P. 479 and cases cited

as conferring a valuable right, the legality of which, but for the law, was at least questionable. The qualified anti-compact provisions, and the insertion of specific provisions for deviation from bureau rates seem all to relate back to the idea that compacts are inherently dangerous and fair competition should be preserved. The change of the voluntary bureau law into a law requiring all carriers to maintain or be members of rating bureaus, and the further change to laws forming a single rating bureau of which all carriers are required to be members is undoubtedly a long way from the anti-compact idea, and is paralleled by a tendency to overlook some of the anti-compact provisions, and to make deviations more difficult.

No doubt the change parallels a change in the character of rating bureaus. In times gone by, a rating bureau was an association of local underwriters, and such bureaus existed by the hundreds. The rating schedule, the anti-discrimination principle and the tendency towards regulation called for expert handling of rating matters, and produced bureaus more highly organized, fewer in number and more inclusive in membership. Rate regulation can to a limited degree proceed against individual companies; but when rate regulation requires companies to conform to standard procedure at many points, the existence of bureaus becomes a practical necessity; not only that, but universal company membership in bureaus as well. A bureau can and does see that its members adhere to standard policy forms and endorsements; that risks are properly classified and rated; that rating schedules are properly applied; and thus polices the business to a degree and with a technical skill which a state supervisory official cannot achieve without setting up a large and costly department for the purpose. Compilations of experience for ratemaking purposes also require both labor and intelligence, and may with advantage be done outside the department and submitted to the supervisory authority as a whole.

The bureau performs a valuable and important function. It carries with it, perhaps, a natural tendency to emphasize system, routine and rules of practice, and therefore to become stiff, inelastic and unprogressive. Woodrow Wilson said of governmental boards and bureaus, "A board is usually long, narrow and wooden."

A great many of the bureau provisions probably communicate no very novel principles; setting forth in the main methods of organization commonly in vogue, and duties such as most well-organized bureaus perform. One presumes that bureaus ordinarily assess expenses, levy charges and render services without discrimination; that they keep careful records of their proceedings and of their financial transactions; that they make inspections of risks rated on schedule and furnish persons at interest information as to their rates; that they give hearings to any person aggrieved by their doings. It of course does no harm to prescribe these things.

The following points may be noted as applying to the fire rate-regulatory laws:

Publicity Provisions.—Certain laws, notable that of Missouri, lay some emphasis on the bureau and the company as vehicles for giving public information as to rates. Presumably these provisions relate to some difficulty experienced in the past: though the mere maintenance of a public rating record, especially when it contains some long and complicated schedules, is not particularly informative to the inexpert without considerable explanation. The writer recently asked an agent to let him see his fire manual. There was laid before him a pamphlet printed fifteen years ago, copiously ornamented with stickers, and supplemented with a bundle of loose printed notices of changes and modifications issued throughout that long interval and running to a bulk two or three times as big as the pamphlet. The agent was a man of long experience, and it served his turn: but a novice never could bring order out of that chaos. Maybe that is not a fair sample: still, the writer has heard a supervisory official, and one from no mean state, express the opinion that the fire companies had no genuine manual.

Filing Provisions.—Filing of schedules, rates, forms, rules and regulations is under a majority of the laws optional with the supervisory authority. In some laws, however, it is required as a matter of course, and transformed into a means of rate control by provisions requiring compliance with rates, etc., on file, and other provisions calling for administrative approval prior to use. Such provisions are common enough in the compensation acts, and make very little trouble there: the application of such provisions in the fire rating laws have in one or two instances figured in litigation. Departments which require filings need a well-organized departmental unit to handle them.

Competition.—Several features of the acts have pertinence to the great question of competition. The acts are in some cases definitely addressed to stock companies; others apply to participating carriers, not quite in the same degree as in the case of stock carriers. The non-partisan rating bureau with balanced committees is characteristic of workmen's compensation though it has appeared also in automobile rate-regulatory laws. The Wisconsin law provides that where bureaus have participating members, they shall be represented on the managing committee of the bureau; but this is exceptional. Generally the fire laws go no further than to open up the stock company bureaus to non-stock carriers, and to restrain them from interfering with participating plans. But the existence of competition is a matter that has submitted certain features of the acts, notably the anti-discrimination feature, to considerable strain and stress. There is competition among bureau members; a competition which it is the object of the bureau to prevent from straying into the rating field any further than the statutory provisions as to deviations permit. There is competition from non-bureau members, and from non-admitted companies; and a competition very naturally aimed at the choicest and most profitable business. Competition may be met only in one way; by making a rate that will enable the bureau company to hold the business. This may be achieved by an operation on the rate directly or on the policy form; and either may produce a conflict with the anti-discrimination law. A few instances may be cited:

(a) There has appeared in several states a controversy over a type of policy, issued for a term of five years, and for a rate comparable with a five year term policy with premium paid in advance, but providing for annual payment of premium and terminable at the end of any year. This was, of course, patently discriminatory in case of any company making the same rate for a five-year policy with premium payable in advance, or issuing one year policies at a higher rate. One state, I believe, has made exception, so as to allow this type of policy.

(b) A much more common exception that appears in a good proportion of the laws, is of sprinklered risks. Here a keen competition exists, and had to be met by setting up special rating machinery, coupled with an exception of the line from the application of the ordinary rating law.

(c) The South Carolina law contains a curious exception permitting the making of a special rate to meet the competition of a non-admitted company.

(d) The New York law contains an anti-discrimination provision which instances expense as well as hazard as a point on which equality of treatment is required. This probably refers to a situation in workmen's compensation insurance where differential methods of rating based on a difference in experience and containing also a gradation in expense by size of risk have been set up; and it is by no means certain that expense is not a proper element of hazard. Some risks entail a higher expense cost than others; and differential expense is always entailed by differences in commission.

(e) On this last point there are a number of laws which call for equality in point of commission to local agents on risks of the same kind. It is by no means certain whether these were intended to bar commission differentials, or whether they are an attempt to do away with the pernicious practice of allowing excess commissions to certain agents or to agents in certain localities. Excess commissions, it will be recalled, figured in the Missouri rate cases.

All these mark points of stress, created by competition. It may be necessary at some time or other to amend anti-discrimination provisions so as to allow rate differentials made to meet competition or to interpret unfair discrimination as not excluding such differentials. This is no new or unheard-of idea. The anti-discrimination provisions in laws applying to the rates of common carriers by railroads do not exclude differentials made to meet competition.[9]

The laws cannot blink the fact of competition, nor the fact that they cannot tie the hands of one class of carriers from doing certain things, leaving other carriers free to effect the same results by other means without ultimately prejudicing the position of the group whose hands are tied. It is no more unholy to effect a particular rate directly than to do it by a participating plan; and some participating plans are not altogether above criticism as to reasonableness and equity. Participating insurance is a meritorious method of insurance, but it does not follow that every participating plan comes within the law. Anti-discrimination provisions general in character tend to forbid discriminations in dividend as well as discriminations in rate; it is barely possible that the anti-discrimination provisions of the rating laws, providing as they do a statutory method for removing discriminations, are a bit more effective than a mere statutory prohibition, and therefore a greater burden in cases where a carrier has to make a differential in rates or lose a choice block of business. Hence, the specific modifications already made, and the possibility of more in the future, unless a general provision or general interpretation recognizing competition as an element justifying a rate differential is established. As it is, participation plans have been under investigation by a number of state departments within recent years, and the matter has also been considered lately by the National Association of Insurance Commissioners.[10]

Rate Control.—The laws looking toward rate control are of three distinct kinds:

(a) A supplement to filing provisions, requiring rates, schedules, rules, etc., to be approved prior to their being made effective.

(b) A provision similar to that for removing discriminations, authorizing the supervisory authority to take cognizance of particular rates or classes of rates, schedules, rules, etc., determine whether the same are fair, equitable, reasonable, adequate or non-discriminatory, and either make findings or issue orders in accordance with the determination.

(c) A provision calling for a regular return of experience of premiums and losses by classifications and in the aggregate, and a determination whether there has been an underwriting profit less or greater than what is reasonable. Authority is given to order rate reductions; somewhat less frequently to order rate increases also; and provision is made for the dis-

[9] See Note 8 Supra, P. 354

[10] *General Ins. Co.* v. *Ham,* 57 Pac. 2nd 671
Opinions of Attorney-General, Minnesota, Dec. 10, 1938, June 1, 1939, Dec. 2, 1940, Oklahoma, Jan. 15, 1940, Feb. 20, 1940, Florida, Oct. 3, 1939

tribution of the rate reductions among classifications, generally by the companies or bureaus involved; sometimes requiring supervisory approval. Sometimes authority is given for a distribution by the supervisory authority.

This does not include the Texas law which provides for rate determination by the supervisory authority, though the distinction between authority to make rates and the authority to approve or disapprove is practically not so very great.

The standards set up by the laws are somewhat broad and general. Equity, justice, reasonableness and adequacy may well admit of a variety of interpretations. Presumably by adequacy, reference is made to the sufficiency of the rating system to yield enough money to cover losses and expenses; by reasonableness, reference to the profit and safety margin to be allowed in the rates. But from these very broad interpretations flow some odd questions which have figured in arguments before supervisory officials and in litigation. Some of these may be briefly noted.

Adequacy and Reasonableness.—The laws, at least those of type (c) listed above, generally contemplate a review of adequacy and reasonableness with respect to the combined experience of all carriers. But when the matter came before the Supreme Court in the Missouri rate case[11] the court said in effect that insurance carriers are competitors; that the constitution protects them individually, not in the aggregate; and that each company must make out a case that the rates attacked as unconstitutional are confiscatory as to itself; and that adducing the experience of all carriers is not sufficient.

This does not necessarily mean that the experience of all carriers has no application. The courts have on occasion given respectful consideration to the actuarial tables of life companies, which are essentially evaluations of the underlying hazard based on experience and the experience of more than a single carrier. But the underlying hazard is the hazard of loss; which is presumably the same for all carriers. Expense is a very different matter, and may vary widely among individual carriers. Presumably, if the underlying loss hazard could be evaluated by means of a scientific use of experience data derived from all carriers, so much would be generally accepted by supervisory officials, and so much might be accepted by the courts as a limit below which insurance departments constitutionally could not go in making their rate determinations without some clear evidence that the evaluations made were not authoritative as to the future in the particular case.

Whether such an evaluation could be made in case of fire insurance, the writer does not pretend to say. It would require an analysis of premiums and of losses, and converting both to what they would have been, had the

[11] See discussion of litigation, Missouri law, P. 363 *et seq.*

insurance been in accordance with whatever policy form and policy term is taken as standard. Some move in that direction may be noted in the provision of the Wisconsin law, requiring policies written at deviation rates to be reduced to terms of standard rate; some move towards a new method of compiling statistics, and a method which might figure in making such an evaluation, may be seen in the provision of the West Virginia law requiring statistics to be assembled from copies of daily reports. But moves in this direction seem as yet not to have gone very far. The report forms the writer has seen do not undertake to separate the differences of premium due to rate changes or deviations, due to the use of particular endorsements and conditions, due to prepayment discounts, and due to the use of schedules. As it stands, the return is without homogeneity, and useful only for general purposes, namely the determination of the results over all and by classification.

The matter of expenses is a different matter. Taxes, presumably, are levied on the same basis for all carriers, and a uniform loading for this purpose covering premium taxes and fees could doubtless be sustained. Acquisition cost consists mainly in commissions, paid ordinarily as a percentage of premium; the justification of a uniform loading for this purpose depends on uniformity in commission scales as between company and company. Bureau expenses are generally distributed in proportion to premiums, save as to fees and charges for particular services. A uniform loading for this purpose might be sustained. Loss adjustment, underwriting and general expense other than underwriting might conceivably vary; *a priori,* expenses of a small company ought to average higher than those of a big company; those of a newly-formed company higher than those of an old, established company. Differences are possible between the expenses of independent companies and those that are members of groups and fleets. But if uniformity could be introduced into the commission scale, a considerable part of the expense would become uniform as between company and company; the rest might be found to present conditions which could be equated by the use of a satisfactory average. A study and settlement of this problem in conjunction with the other might produce a standard rate level, satisfactory for use in rate-regulatory operations, and satisfactory also as a standard by which the justice of deviations sought might be measured.

Acquisition Cost.—Commissions paid to agents figured in the Missouri rate case, the Superintendent making exclusion of excess commissions; a procedure upheld in the state courts but criticized in the Federal Courts. The writer is accustomed to a rating system wherein a definite standard of commissions and acquisition cost enters into the procedure. This can be done, however, only with the assent of the supervisory authorities. But a number of the rate-regulatory laws relating to fire companies contain provisions looking toward the control of commissions and the enforcement of equality therein; one state has lately indicated an intention to reduce rates if commissions were not brought within reason; a curious action in view of the anti-compact provisions relating to commission on that state's statute book. Of course, there is a difference between standards imposed by the state and standards imposed by agreement, even if the results are the same; but the difference seems somewhat technical. It seems possible that in a particular state, the matter of standard rates of commission could be agreed upon, provided companies are so minded, or at least a standard allowance for commissions to be carried into the rates.

Prospective Elements.—The action in the Missouri rate cases in giving consideration to the future effect of rate changes already made, and to the fact that a Federal law imposing a war profit tax had been repealed seem proper enough if rates are to be considered as an estimate of what will happen in the future. If the rating procedure is to be looked upon as an account current, to be balanced annually, one would naturally look solely to the past and not to the future; but this seems inconsistent with the terms of most of the rating laws. And in the matter of the surcharge imposed, or sought to be imposed during the first World War, which has left its trace or at least one of the rate-regulatory laws, that of Michigan, the carriers were very evidently making a rate operation entirely prospective in character, and predicated entirely on judgment, which may or may not have been justified by the result.

Underwriting Profit.—The matter of what is a fair underwriting profit, whether it is properly assessed as a standard margin on insurance transactions or is to be assessed on the capital and surplus of the company or to an allocated portion thereof, has entered into one of the rate cases, that of Kansas, which took the latter view. The writer's own opinion is that this procedure would be monstrously inconvenient in practice, and highly artificial as well. It has not figured in compensation ratemaking procedure, because of the absence of a profit loading. There is not, in insurance, as in case of public utilities, a substantial physical property dedicated to a public use. The business itself is affected with a public use, and capital and surplus do not enter into the underwriting operation, standing as a margin to take up losses and expenses in excess of estimates, just as are the capital and surplus of public utilities.

Determination of Underwriting Results.—The question whether underwriting results should be set up on the basis of premiums received, losses and expenses paid, or on the basis of premiums earned, losses and expenses incurred, seems to involve, less a question of law than of fact. Either method presents a picture of underwriting results; making up pictures on both bases over a series of years long enough to include cycles of advancing and of declining premium income should indicate which basis will produce the most satisfactory results, year in and year out. Off hand, one would think the basis of premiums earned and losses incurred would fluctuate less widely than the other. In compensation insurance, premiums earned and losses incurred by policy years is used; and this, by comparing premiums with losses on the same policies, has some advantages from the actuarial standpoint, but could hardly be used save in a line of insurance where one-year policies are characteristic. Coming into Kansas and Missouri on the heels of litigation there, the compensation carriers had to justify their procedure in the way indicated above, namely by a comparison of results over a series of years of the several methods. The justification was sufficient to eliminate the question.

Investment Earnings.—The question of including investment earnings as an element of underwriting profit has been answered by the courts in three different ways (1) that they should not be used (2) that earnings on unearned premium reserves should be used (3) that earnings on unearned premium reserves and all other assets of the company should be used. The problem is less important than it was; investment earnings are not what they were; investment losses ought in justice to be an element of underwriting loss if investment earnings are an element of underwriting profit; and several of the last ten years show investment losses aplenty. This is a matter which varies so greatly by company that its introduction would serve as an element that could not in justice be averaged, provided consideration is given to the views of the Supreme Court. The particular issue of using investment earnings on the unearned premium reserve should be considered in view of the fact that a goodly part of the reserve represents expenses paid in advance out of surplus on which the companies lose interest; part is set up on premiums discounted because of prepayment, which discount must be made up somewhere, insofar as losses and expenses do not vary with the reduction in premium. The compensation carriers have not been faced with this problem, and it is with them quantitatively less important; unearned premium reserves on one-year policies on which a substantial part of premium is collected after the expiration of the policy are relatively small; and the loss reserves are discounted in advance and that on a basis probably greater than the average investment earnings.

Litigation.—References made above as to litigated points call for some discussion as to litigation in general. There has been no little litigation over rate regulation, a deal of it turning on the interpretation of the laws rather than on principles of ratemaking. The principal litigation involving such principles is as follows:

The Arkansas Rate Case.[12]—This case involved an action taken under the rate-regulatory section of the law. The commissioner, in making tabulation of underwriting profit, made it on the basis of premiums received and losses paid instead of premiums earned and losses incurred. The court stated that the words "underwriting profit" in the law should be interpreted, in accordance with a trade usage of long standing, to mean the balance between premiums earned and losses incurred.

The court indicated that the commissioner was not, under the law, obligated to give consideration to the conflagration hazard.

The Kansas Rate Cases.[13]—The first two cases cited in the note involved an order made by the superintendent of insurance making cuts of 12% on rates for mercantile risks, 14% on rates for dwellings, private barns, etc. The case in the state court was argued on a demurrer to the petition of the companies which was overruled. The case in the Supreme Court of the United States resulted in a very important decision sustaining the constitutionality of the act, and declaring insurance a business affected with a public use.

The third case involved an order of the superintendent reducing certain rates and increasing others. The case was considered twice by the Supreme Court of Kansas, the second case a rehearing of the first. The matter came at about the time of the Missouri rate litigation, hereafter discussed, and involved some of the same issues. Summarily stated, the court ruled:

(1) That underwriting profit should be computed as the difference between premiums received and losses paid, not, as contended, the difference between premiums earned and losses incurred.

(2) That the profit to which insurance companies were entitled was not a particular margin on the insurance transaction affected by the rate, but an aggregate return on so much of their aggregate capital and surplus as could properly be allocated to Kansas and to the particular line of insurance.

(3) That in estimating profit, the investment earnings of the companies ought to be taken into account, not as in the Missouri rate cases, on funds representing the unearned premium reserve, but on all funds, including capital and surplus.

The Missouri Cases.—The Missouri fire rating law has been very heavily litigated, the greater part of the cases falling into a connected series that started in 1922 and went to an incredible climax in 1940.

[12] *Bullion* v. *Aetna Insurance Co.*, 237 S. W. 716 (1922)

[13] *Aetna Insurance Co.* v. *Lewis*, 142 Pac. 954 (1914)
German Alliance Insurance Co. v. *Kansas*, 238 U. S. 389
Aetna Insurance Co. v. *Travis*, 257 Pac. 337, 259 Pac. 1068 (1926, 1927)

Litigation Under the Law of 1915.—The present rating law was preceded by an earlier law enacted in 1915. This act was involved in two cases,[14] both brought by the managers of the Missouri Inspection Bureau. The first was an attempt to use the rating law to overthrow a statute forbidding the use of the "reduced rate contribution clause." This statute had been amended to permit its use in cities over 100,000 population, and the contention was raised that there was a discrimination, unconstitutional as denying equal protection of the laws, and so inconsistent with the provisions of the anti-discrimination provision of the rating law as to fall within the terms of the general repeal of acts and parts of acts inconsistent therewith. The attempt was unsuccessful. The second case was litigation designed to compel the superintendent to approve the ten per cent surcharge which the fire companies sought to apply to all policies during the first World War. The attempt also failed, the court indicating that the fixing of rates was a matter legislative in kind, and not controllable by the courts. A contention that the act as thus interpreted was unconstitutional was dismissed on the ground that the companies could not come into court under the terms of the law and deny its constitutionality.

Litigation Under the Order of 1922.—The rating law of 1919 was followed in 1922 by an order of the superintendent of insurance, Ben C. Hyde, reducing certain rates ten per cent. His first order was made in January; was followed by litigation, and an agreement was formulated for the withdrawal of the order and the submission of evidence. A second order followed in October, 1922, and this resulted in cases both in the State and in the Federal Courts.[15]

The first case cited in the note resulted in an elaborate opinion sustaining the superintendent's order. The ten per cent reduction was arrived at:

(a) by determining underwriting profit by deducting losses and expenses paid from premiums received instead of deducting losses and expenses incurred from premiums earned, as is the common practice.

(b) by including as profit investment earnings on the unearned premium reserve.

(c) by carrying into the computation the prospective effect of a rate increase granted in January, 1920.

(d) by excluding excess commissions paid agents in St. Louis.

(e) by eliminating as expense the apportioned amount of the Federal Income Tax.

[14] *State* ex rel *Waterworth* v. *Clark,* 204 S.W. 1090 (1918)
State ex rel *Waterworth* v. *Harty,* 213 S.W. 443 (1919)

[15] *Aetna Ins. Co.* v. *Hyde,* 285 S.W. 65 (1926)
State ex rel *Hyde* v. *Westhues,* 290 S.W. 443 (1927)
Aetna Ins. Co. v. *Hyde,* 273 U. S. 681, 275 U. S. 440 (1928)
Aetna Ins. Co. v. *Hyde,* 34 Fed. 2nd 185 (1929)

(f) by eliminating as expense the war profit tax in force during the first World War, but then repealed.

On all these points the court sustained the superintendent.

The third case cited in the note was a proceeding in the Supreme Court on writ of certiorari to litigate the constitutional issues. It resulted in a decision against the companies. Briefly, the court held that the "due process" clause is intended to protect individual rights; that companies complaining of a rate order as confiscatory must make showing that the rate order is confiscatory as to them individually, and that companies could not bring a joint proceeding supported by evidence that it was confiscatory as to them collectively.

The companies then started individual proceedings in the federal courts, resulting in the fourth case listed. This ended in failure for the greater part of them, the court holding that they were estopped from further proceedings by reason of a stipulation entered into by their counsel. As to the others, not parties to the stipulation, the court indicated that they might continue, and rendered an opinion which in brief approved the estimation of underwriting profit on the basis of premiums received and losses paid; but indicated that it was not proper to include interest earnings. He indicated also it was not proper to exclude excess commissions, but sustained the giving consideration to the effect of the rate increase of 1920 and to the exclusion of the war tax.

The case also involved an attack upon an order made in 1923 by Commissioner Hyde, pending the litigation, calling for a fifteen per cent reduction. This order, however, was withdrawn before the case came to decision and was held by the court immaterial.

The stipulation mentioned in this case figured also in the second case cited above which dealt with procedure in the Circuit Court, subsequent to the decision in the third case cited.

Litigation Under the Order of 1930.—The companies now laid a foundation for another test by making a rate filing calling for an increase of 16⅔%. This was made late in 1929 and disapproved in June 1930. Proceedings were then begun in both the federal and state courts; the greater part of the companies electing the federal courts, about 70 preceding in the state courts. The federal proceedings were commonplace enough. The carriers were empowered to collect the rates contended for pending the outcome of the litigation, the excess above the rates in force, prior to the order, being impounded in the care of a custodian appointed by the court; and a referee was appointed to take evidence and make findings.

The state proceedings were marked by an extraordinary amount of litigation over what would appear to be a very plain issue of law. The statute provided for the impounding of excess charges with the superintendent pending appeal, and provided for deposit of the funds in banks. The judge of the circuit court before whom proceedings were pending, however, undertook to impound the funds in court, and to make orders as to their custody and investment; and after the Supreme Court had indicated that the superintendent was the proper depository, sought to make orders as if the superintendent were a court custodian. The Court ultimately through medium of several writs of prohibition, got the funds back into the hands of the superintendent and quelled the hopes of some of the attorneys for a large allowance of fees payable out of the fund by indicating that the expenses should be paid out of the funds of the insurance department. As to the companies, the court indicated that their proceeding was tainted with the same errors as had been indicated in the proceeding in the Supreme Court of the United States, namely attempting to set up a joint case justified by aggregate evidence.[16]

The Order of 1935.—While all this litigation was going on, a new element had entered into the matter. In May, 1935, Superintendent O'Malley entered into an agreement for the disposition of the case. Briefly, this involved his making an order approving four-fifths of the 16⅔% increase asked for in 1930. He attempted to make his approval retroactive to 1930, a procedure held by the State Supreme Court to be illegal. He did agree, however, that four-fifths of the impounded premiums should be returned to the companies, subject to certain expense charges, and one-fifth of the impounded premiums should be returned to the policyholders. The Federal Court accepted the agreement as one he had a right to make, and the companies actually received from the custodian their agreed portion of the award, and a very substantial matter, too, the funds impounded aggregating ten million dollars. This action was taken in 1936. The agreement never went into effect as to the funds impounded in the state courts, which were involved in copious litigation and ultimately came into the possession of Superintendent O'Malley's successor. More or less suspicion attached to the affair, which came to a climax in May, 1939, when Superintendent Lucas filed in the

[16] This litigation is embodied in the following cases:
State ex rel *North British and Mercantile Ins. Co.* v. *Thompson,* 52 S.W. 2nd 472 (1932)
National Fire Ins. Co. v. *Thompson,* 281 U. S. 331
State ex rel *Abeille Fire Ins. Co.* v. *Sevier,* 73 S.W. 2nd 361 (1934)
State ex rel *McKittrick* v. *American Colony Ins. Co.,* 80 S.W. 2nd 876 (1934)
State ex rel *Thompson* v. *Sevier,* 80 S.W. 2nd 893 (1934)
State ex rel *Pennsylvania Fire Ins. Co.* v. *Sevier,* 102 S.W. 2nd 882 (1937)
American Constitution Fire Ins. Co. v. *O'Malley,* 113 S.W. 2nd 795 (1938)
State ex rel *Robertson* v. *Sevier,* 115 S.W. 2nd 810 (1938)
Aetna Ins. Co. v. *O'Malley,* 118 S.W. 2nd 3 (1938)
State ex rel *Carwood Realty Co.* v. *Dinwiddie,* 122 S.W. 2nd 913 (1938)
Aetna Ins. Co. v. *O'Malley,* 124 S.W. 2nd 1164 (1939)
State ex rel *Robertson* v. *Sevier,* 132 S.W. 2nd 961 (1939)

Federal Court a motion for a citation to show cause why the agreement should not be set aside and the money disbursed to the companies be paid back into court for distribution to policyholders. Evidence was adduced setting forth the raising by the companies of a fund of some $440,000; the passing of this fund into the hands of a prominent politician of Kansas City, and the passing of some $60,000 thereof into the hands of Superintendent O'Malley. The funds were returned to the court and the court ordered a distribution to the policyholders at the companies' expense.[17]

In the state court there followed a proceeding on an information by the attorney-general, looking towards ouster or fine of the companies involved. The preliminary stage of this proceeding is contained in the case of:

State ex inf. McKittrick v. *American Ins. Co.,* 140 S.W. 2nd 36 (1940).

Conclusion.—The moral to be drawn from the litigation is generally that litigation is a slow and highly expensive method of dealing with rate-regulation, and that on the whole one gets quicker action and takes fewer chances in dealing with supervisory officials and endeavoring to work in harmony with them. The Missouri rate case extended over a period of twenty years, and that without a real decision on the main issues pertaining to the true meaning of the rate-regulatory law, and the constitutionality of the action taken. It is easy to get into rate litigation, expensive to continue therein, and difficult to exit gracefully therefrom. Fortunately the foci of real difficulty appear as yet but few; though of course new ones might develop. An early understanding with supervisory officials as to principles and methods, and an endeavor to introduce a reasonable portion of the art of the actuary into the ratemaking system, is indicated as desirable.

III. Rate-Regulatory Laws Applicable to Workmen's Compensation Insurance

Introductory.—In the year 1911 appeared the first laws applying the principle of Workmen's Compensation in a thoroughgoing way and drafted in a manner that survived court tests of constitutionality. Some of these laws required the employer to provide security by way of insurance or otherwise: some set up special insurance machinery in the form of state funds or a special type of insurance carrier. With insurance provisions came rate regulation, either for the protection of the employer or for the protection of the state-fostered insurance agency. The practice of rate regulation has developed to the point where only a few states lack rate-regulatory laws.

The regulations applicable to private carriers are (a) general regulatory provisions (b) special provisions for the rating of risks assigned under

[17] *American Ins. Co.* v. *Lucas,* 38 F. Supp. 896, 926 (1940)

statutory plans. In addition, laws setting up state funds or providing for the incorporation of employers' mutual liability insurance companies commonly have provisions for classification, rating and declaration of dividends. Appendix II contains references to these provisions and detailed description of the provisions applicable to private carriers.

A majority of the provisions are of a type reminiscent of the Kansas law applicable to fire companies: namely a filing requirement addressed to companies individually coupled with provisions requiring filing to be approved before being made effective. Provisions are often added for review of approved filings or specific rates, by way of proceedings for a withdrawal of approval or otherwise. Many laws either make no mention of rating bureaus or mention them more or less incidentally. Some laws require rating plans to be applied by approved bureaus and there are a few genuine bureau laws. Due to the form of the laws, deviation provisions are rare, save in case of bureau laws. Rate standards emphasize adequacy more prominently than reasonableness: anti-discrimination provisions are generally of a simple type, and in only a few cases are fortified with the elaborate administrative machinery usual in the fire rate-regulatory laws. Provisions for periodical reviews of rates are practically non-existent. In all these respects the laws differ markedly from the fire rate-regulatory laws.

The rate situation is likewise different and in some respect unique. The bureau, whether by requirement of law, or in practice, is a non-partisan bureau, with committee membership equally divided between stock and non-stock companies, this necessitating a provision for the breaking of tie votes. For a goodly number of states, rate administration only is a local function; rate-making, with statistical and actuarial functions being vested in a central organization. Where law or long-continued practice vests ratemaking functions in a local bureau, the central organization can, of course, act only in an advisory capacity. Ratemaking and statistical methods are reasonably uniform, and have in general been adjusted to the satisfaction of supervisory officials: controversy has been relatively rare, litigation much rarer. It does not follow, of course, that this condition will always obtain.

Detailed commentary on the laws is as follows:

(1) *Coverage.*—The laws are generally either embodied in the compensation act or closely related thereto. Generally they specifically cover insurance of the liabilities created by the act: some acts also specifically cover insurance of the liability of employers rejecting the act: a few specifically cover all employers' liability insurance.

(a) *Employers' Liability.*—It is sometimes not at all certain under the terms of the act whether it includes authority to regulate employers' liability insurance. Usually the question is not material. Compensation acts often contain employers' liability provisions: some acts contain provisions requiring all employers' liability policies to include liability under the compensation act. Apart from such requirements, the policy commonly written covers both workmen's compensation and employers' liability, because of the relative smallness of the employers liability hazard and the very common difficulty of determining whether a particular case is really a compensation case or an employers' liability case. There are, to be sure, cases where the employer is wholly outside the terms of the act, and in such cases a straight employers' liability policy may be written if the law permits. Farm risks, other excepted employments, employers rejecting the act and vessel risks are instances.

Rating policy has been for some time (1) to cover both hazards at a single rate (2) to quote the same rates for employers' liability as for the combined workmen's compensation-employers' liability coverage. The first policy was dictated by the practical difficulty of segregating experience and getting enough genuine employers' liability experience to establish a separate employers' liability rate. One or two states originally required a separate premium for the employers' liability hazard, but this has long since been abandoned. The second policy was dictated by the necessity of avoiding charges of encouraging employers to reject the act by quoting a lower rate for employers' liability. Separate rates are, of course, quoted on vessel risks, to which no compensation act applies.

There have been cases where supervisory officials have questioned their authority to act on or to regulate rates covering the employers' liability hazard solely: other cases where that authority has been challenged. It is unfortunate that question should be raised: as the logical result of a successful challenge would be the divorcement of the two lines, and the upsetting of a long-continued practice.

The question whether state funds have authority to insure employers' liability has more than once been raised, but has generally resulted in the extension of the power by statutory enactment.

(b) *Federal Jurisdiction.*—The federal jurisdiction embraces two important fields, interstate commerce and the closely allied jurisdiction over navigable waters of the United States. In case of railroads, subject to the Federal Employers' Liability Act, the employers' liability hazard is material: but railroads do not often insure their liability. In the maritime field, there are vessel risks, subject to the general maritime laws and the Jones Act, and many maritime operations coming within the U. S. Longshoremen's and Harbor Workers' Act. There are numerous cases where a risk may be partly within state jurisdiction, partly within federal jurisdiction; employees passing from one to the other so readily that no separation of payroll is possible. Some classifications, therefore, have rates covering both liability under the state compensation act and under the Longshoremen's and Harbor

Workers' Act: others where, in case maritime coverage is desired, the rate is increased by a certain percentage.

Ordinarily a question of jurisdiction exists here also, though it is seldom if ever raised. Some states have specifically empowered supervisory officials to approve or disapprove rates contemplating coverage under the Longshoremen's and Harbor Workers' Act. In some states supervisory officials have disclaimed authority to act.

(c) *Partial Insurances.*—The question has risen at times, whether reinsurance, and insurance of the excess liability of self-insured employers come within the rate-regulatory provisions. In the latter case, essentially a competitive situation exists: and in some instances supervisory officials have ruled that the law applies. This has its difficulties, for the provisions of the acts rather obviously contemplate insurances of the entire hazard; as obviously, insurances of the excess hazard are entirely different from insurance of the entire hazard, and not merely the rate, but the expense loading are governed by very different principles. Compensation statistics can furnish a certain statistical basis for excess rates: but writers of excess insurance commonly pick their risks with some care, and a pure premium based on the experience of risks at large might not be applicable. As to the expense loading, such experience as the writer has had indicates that it is hardly likely that a rating organization comprehending mainly carriers of full-coverage policies will be particularly moved by the needs of their competitors or exert themselves particularly to make competition possible. It has been stated that attempts to regulate excess rates have merely resulted in the passage of such risks to Lloyd's of London.

The question whether a law covers excess insurance rates can usually not be settled on the express language of the law, but has to be decided by inference. There are one or two cases in which the law is explicit.

(2) *Supervisory Authority.*—In a majority of the acts, the supervisory authority over rates is the insurance commissioner, sometimes with requirements that he consult the industrial commission, or providing for cooperation with that body. But in Arizona, Colorado, Delaware, Kentucky and Utah, rate regulatory laws are administered by the industrial commission, and in Arkansas and Illinois, the industrial commission has authority over the rating of assigned risks. In Louisiana, supervision apparently is lodged in a board of insurance in the department of the secretary of state. In Michigan while most supervisory functions are in the commissioner, hearings for the removal of discriminations is before a board of three members, the commissioner, the state banking commissioner and the attorney general. In Minnesota, supervisory authority is in a commission consisting of the insurance commissioner, a member of the industrial commission, and a third appointed member. In Oklahoma, supervisory authority is in a board,

consisting of the commissioner, the state fire marshal, and a third appointed member. In Tennessee, supervisory authority over rates is in a board consisting of the commissioner, the secretary of state and the governor. In Virginia, the supervisory authority is the corporation commission.

This peculiar variation in authority bespeaks the importance of workmen's compensation rates, and the necessity for a tie-in with the machinery for administering the compensation act. The industrial commission (using the title to include all officers and boards administering the compensation act) is primarily concerned with loss adjustments. But in this, it deals constantly with the employer's insurer: is interested in the proper protection of the employee, and may very naturally be entrusted with the administration of the insurance provisions of the act. Approval of policy forms is very closely allied therewith. Approval of rates is a step further removed. But the statistics it compiles for its own use are closely related to the statistics used by the carriers.

The approval of policy forms and the approval of rates involve problems, legal, statistical and actuarial, more akin to the ordinary duties of the insurance department than to those of the industrial accident board: hence the more common policy of entrusting the latter, and sometimes the former as well, to the insurance commissioner. It is due the industrial commissions to say that they have functioned very well and fairly. Differences in practice due to the diversity of supervisory bodies are on the whole surprisingly few.

(3) *Bureaus.*—Commentary has already been made upon the type of bureau administering compensation insurance. The bureaus naturally existing at the time workmen's compensation began were company organizations and a deal more centralized than in case of fire bureaus. Non-partisan bureaus appeared, partly, at least, as the result of pressure from supervisory authorities. The authorities wanted uniformity in classifications, underwriting forms, manual rules and statistical methods: without these, rate supervision would become enormously difficult. Rate competition was generally not desired. Thus, in state after state, bureaus were set up: when this became expensive, and productive of diverse practices, a central organization, or rather a succession of them was set up, culminating in the National Council on Compensation Insurance. Centralization however is by no means complete, and was not intended to be: but the central performance of statistical functions has saved much money, and a central unifying influence has saved much more.

The merit of the non-partisan system is that it secures unity of action in all matters wherein unity is requisite. The vice of the system lies in that unity cannot be carried beyond a certain point without producing a result more favorable to one set of carriers than another, and it is hardly to be expected that competing groups will be tenderly considerate of one another's needs, or fail to take advantage of the balanced committees to produce a series of deadlocks and delays. The experiment has, however, lasted long enough, and the two groups have dwelt together long enough to develop a degree of comity, making clashes less frequent, cooperation more in evidence.

The system entails a single rating organization for filing and for administering the rates in any single state: generally, therefore, the bureau companies present or have presented for them, a single set of manual classifications, rules and rating plans, and generally a single set of rates. Where under the law the bureau is compulsory, or where as matter of fact there are no non-bureau companies, the bureau filings are the only ones made. Where bureau membership is not compulsory, independent filings could be made: but the task of preparing the enormous mass of detail that goes with a rate filing, and the problem of getting it approved when made, are so considerable that while independent filings have sometimes been threatened, those actually made have been somewhat simple variations from bureau rates. The National Council's constitution permits the two groups of carriers to establish variant expense loadings, and when this is done, makes separate filings for the two groups in states where the law permits. Some laws specifically permit variations, but variations filed and approved are in most jurisdictions rare.

(4) *Rate Filings.*—The laws commonly require companies to make filing of rates and rating matters, almost always coupled with provisions for approval. The matters most often specified are classifications, premium rates applicable thereto, and schedule or merit rating plans. Minimum premiums and the experience rating plan are specifically mentioned only now and then, and the filing of manual rules is not required by all laws. General procedure is to interpret the laws as requiring the filing of all matters in any way pertaining to the rating of risks, and similarly in case of the approval provisions. The one case in which the wording of the filing and approval provisions has been raised to affect rating procedure was in case of the doing away with schedule rating, two states raising the point that, as their law was worded, a schedule rating plan had to be filed and approved.

Classifications, rules and rating plans are more or less permanent in character. They have to be filed and approved before, or simultaneously with the first rate-filing. Amendments may be filed from time to time, not necessarily in connection with a rate-filing: though if the amendment carries with it a change in rates, such change is generally filed with the amendment. Under existing practice, general rate revisions are made annually, with interim rate revisions or revisions of specific rates as required. The common reason for an interim rate change is a law amendment changing the scale of compensation benefits or extending the scope of the compensation act.

In states having a statutory plan for the insuring of rejected risks, there commonly is a special provision for the rating of such risks. Ordinarily the filing of rates made on specific policies under the terms of approved rates, rules and rating plans is not required. Though it is relatively common for the law to require that rate modifications due to the application of rating plans be clearly set forth in the policy or in an endorsement attached thereto. Provisions for giving the insured information as to the rate, with copies of completed schedules or experience ratings occasionally appear in the laws but are by no means so common as in the fire rating laws.

(5) *Rate Hearings.*—The laws do not always provide for hearings on rate filings. Constitutional guarantee of due process of law requires a hearing at some point, and opportunity to appeal to the courts: but if a hearing is actually given, there is no impairment of constitutional right. Some laws have explicit requirements for notice and hearing; and for protection of the rights of insurer and assured alike there should be protection against sudden ex-parte decisions. The issues involved in a rate revision relate to the factual basis, which is generally statistical, and to the methods, which are actuarial. To determine such issues by presentation of evidence in a formal hearing is very difficult: canvass of the data by experts prior to the hearing is necessary. Fortunately, the statistical methods are by now well established: the actuarial process whereby statistics are converted into rates has been approved by the National Association of Insurance Commissioners, and has been in use long enough so that supervisory officials are reasonably familiar with it. It is very common practice to have a preliminary inspection and conference, after rate computations have been made, but prior to formal adoption and filing. In that way many questions can be settled in advance, and the hearing correspondingly abbreviated. Hearings seem most requisite on rate changes. Hearings on changes in manual classifications, rules and rating plans might well be optional, called by the supervisory official on his own motion or on request. Whether formal hearing requirements should be inserted in the law depends on the supervisory official; by and large supervisory officials appreciate the inherent justice of not taking action affecting rights without giving interested parties opportunity to be heard. The most annoying invasions of the principle are snap decisions as to the rating of a single risk, which are occasionally made ex-parte at the instance of an interested company or agency. Fortunately these cases are rare.

(6) *Rate Decisions.*—The decision made after a filing depends on the regulatory plan embodied in the law. The most common plan is a simple requirement that classifications, rules, rates and rating plans shall not be made effective until approved. In such case, the decision is simply an order of approval or disapproval. No deviation can be made from rates, etc. so

approved until a new filing is made and approved. Most laws are addressed to companies individually: use of bureau rates by companies is, so far as the law goes, discretionary.

This procedure obtains in Alabama, Colorado, Delaware, District of Columbia, Georgia, Kentucky, Maine, Maryland, Massachusetts, Michigan (by ruling), New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Vermont, and Virginia.

Elsewhere, the provisions for filing and approval are overlaid or supplanted *in toto* (a) by supervisory authority to establish rates and rating plans for use by all carriers (Arkansas, Florida, Louisiana, South Carolina, Texas) (b) by supervisory authority to establish minimum rates and uniform rating plans (California, Kansas, Minnesota, Missouri) (c) by supervisory authority to establish uniform *maximum* rates, *maximum* expense loadings and uniform rating plans (Indiana) (d) by supervisory authority to establish *minimum* pure premiums, *minimum* and *maximum* expense limitations, and uniform rating plans (Wisconsin) (e) by general undefined regulatory authority (Arizona, Utah). Under a law of type (a) the only use of a rate filing is as the basis for a general order establishing universal standards and as information as to whether the carrier making the filing is in compliance with the order. The law does not apparently contemplate deviations, or the use of more than a single set of rates or rating plans. It is a curious type of law to appear in states which have anti-compact provisions on their statute books: a complete transition from free competition to no competition at all.

Under a law of type (b) a general order is likewise made, but the law would seem to contemplate that deviations *above* the established rates may be made. The one law of type (c) very definitely contemplates that deviations below the established rates may be made. Type (d) the Wisconsin law, apparently permits companies to make rate filings using pure premiums higher than those established, and expense loading not in excess of the maximum limit nor below the minimum limit: but filings and approvals are definitely required. What happens in states of type (e) depends on the supervisory authorities. There is a curious difference of policy in the state of Missouri, its fire rating law contemplating pretty definitely maximum rate standards, whereas the compensation rating law sets up a minimum standard. The Indiana law is probably a reflection of the fact that Indiana was traditionally, and by virtue of an obscure court decision, an anti-compact state. The Wisconsin law is interesting, embodying more consistently than most laws a definite theory of a standard of adequacy as to loss cost, and standards of adequacy and reasonableness as to expense.

(7) *Adequacy and Reasonableness.*—The laws differ somewhat in point of rate standards. Some mention adequacy only: some refer only to rea-

sonableness, justice, fairness or equity. Some mention both. The anti-discrimination principle requires separate treatment. Little attempt is made to elucidate these somewhat indefinite terms, with the result that their meaning depends on administrative discretion. A number of laws define adequacy to the extent of using a phrase, "adequate to set up the necessary reserves." Presumably this means the loss reserves, and would seem to indicate the use of rates based on pure premiums which measure the loss hazard as accurately as possible. The term doubtless has reference to expected expense as well.

Reasonableness has a somewhat vaguer meaning, and it is not always certain whether the law has reference to reasonableness from the standpoint of the insurer, or from the standpoint of the insured, or from a combination of the two. Reasonableness doubtless implies fairness in the price; contemplates a charge sufficient to cover probable losses, and a charge sufficient to cover probable expenses, insofar as these expenses are reasonable. Reasonableness may also include a proper catastrophe margin, a contingency margin and a profit loading.

There is no great controversy over the methods used for computing the loss estimates carried in the rates. They are not the only possible methods. There is nothing sacred about using five-year averages for pure premiums, two-year averages for indemnity rate levels, one-year for medical. Other experience periods have been used. But these are generally felt to hit normal conditions pretty well. Controversy has chiefly turned on discrepancies between loss estimates of carriers and losses as determined by industrial commissions: but these can be ironed out. Controversy can easily arise over the accuracy with which payroll is audited and assigned to classifications. But by and large the loss estimates carried in the rates are regarded as satisfactory and a fair measure of the hazard undertaken by companies on the average.

As to expense, the expense loading ordinarily used is a fair measure of the probable reasonable expense of stock insurance carriers. It runs a trifle lower than the average expense ratios of stock companies, and is of course a mean between ratios running below and above. It is considerably higher than the average expense of non-stock carriers, which as a group exhibit some little diversity in the matter. The difference is due primarily to a much lower percentage of acquisition cost, and in lesser degree to the larger average size of risk insured.

The reasonableness of the other items is generally not controversial. There is no profit loading. The catastrophe loading is very small. The contingency margin is carried on a basis approved by the National Association of Insurance Commissioners and is at the moment of writing zero for all but a very few states.

Under a majority of the laws, approval of rates is nominally for companies individually: actually it is the approval of a single set of rates submitted by all of them. In a minority of laws, as indicated in the preceding section, what is approved or established is a standard rate for all companies, which standard is either absolute, a minimum or a maximum according to the law. Questions of adequacy and reasonableness probably cannot altogether be confined to the standpoint of companies as a whole or to the standpoint of groups of companies. The interest of a single company has standing in the courts certainly, its constitutional right being that the rate, as to it, shall not be confiscatory. Similarly these questions may require consideration from the standpoint of policyholders, at large or singly.

(a) While the estimates in the rates to cover losses may be accurate for companies as a whole, they may be too large or too small for a company which selects its business somewhat narrowly.

(b) While the estimates in the rates for losses may be sufficient on the average, they represent the average experience of classes of risks not necessarily homogeneous, and may be, for some risks, notoriously insufficient, for others as notoriously excessive.

(c) While it is possible under many circumstances for stock and non-stock carriers to do business under rates based on a set of pure premiums loaded for expense according to the average expense of stock carriers, it does not follow that this can be done under all circumstances without grave injury to the one group or the other.

(d) The use of a uniform expense loading may yield on some risks an amount insufficient to cover actual expenses: on others, an amount much in excess thereof.

It therefore makes a good deal of difference what standpoints are used in judging adequacy and reasonableness and the character of the law, and the allowances possible under it to meet problems such as the above have an important bearing on both its workableness and its inherent justice. The failure of the law to provide sufficient flexibility may put a company or a whole group of companies in a position of great disadvantage, may make small risks or bad risks hard to insure and may drive the biggest and best risks into self-insurance. The same is, of course true as to procedure of supervisory officials under the laws.

(8) *Discrimination.*—The greater part of the laws have provisions relating to discrimination: though provisions after the fire model, with an elaborate prohibition of discrimination of several kinds and an administrative process for removing discriminations are exceptional. Some laws do not even mention the subject: others require rates to be non-discriminatory without expanding on the term. There are in some states general anti-

discrimination laws which are applicable: though some so labeled are really anti-rebating laws.

Discrimination properly refers to the failure to observe equality of treatment between risk and risk, where the risks are in every way similar. It ordinarily does not refer to the practice of classifying risks and making rate differentials between risk and risk in the same class. Doubtless classifications, rating plans and differentials must be reasonable in character and fairly and impartially applied. That much at least is not unfair discrimination.

A good part of the points of strain and stress in the rating system, where it presses harder on one side than on the other, and where relief is sought, and a good part of the cases where new methods are attempted, bring the anti-discrimination provisions into the picture, each side urging an application of the law calculated to block what the other does or attempts to do, not always mindful of the fact that such application may be fatal to certain things they themselves have done, are doing, or may desire to do hereafter.

(a) *Minimum Premiums.*—One of the early cases where the anti-discrimination law was involved was in case of minimum premiums. The application of manual rate to payroll, where the payroll is only a few hundred dollars, may produce a very minute premium. The cost of underwriting and issuing a policy is perhaps $5.00: an audit or inspection would cost something more, thus some minimum premium had to be charged if small risks were to be insurable: the legal authorities, to a question if this would be discrimination answered, yes, if the charges are arbitrary and capricious; no, if made in accordance with a reasonable plan. The general rule established and approved is to assume in all cases a payroll of $1000 or $1500, supposed to represent the wage of a single employee, continuously employed for a year, extend thus payroll at manual rates, and add thereto a constant representing the minimum cost of issuing and servicing a policy.

Most minimum premiums are made by rule. There remain, however, a number of special minimum premiums and a few minimum charges, imposed in classifications where the character of the smaller risks renders them unattractive to underwriters.

This matter involves:

(1) A classification by size of risk.

(2) A rate differential based on an assumed element, i.e., the assumed payroll, not present in fact.

(3) A rate differential in the form of a flat charge.

(4) A rate differential based, not on loss hazard but on expense.

(5) The special minimum premiums involve a further point, a differential dictated by underwriting considerations.

(b) *Schedule Rating.*—Schedule rating also involved a size limitation: that is, it applied to risks with a certain minimum payroll developing a certain minimum premium. The old limitation was $5000 payroll, $50 premium. This rose to $10,000 payroll, $50 premium, and ultimately to $15,000 payroll, $150 premium. The validity of the limitation seems to have been well-established.

(c) *Experience Rating.*—Experience rating employs size differentials much more liberally. The qualification limit varies in size, but may be as much as $500 annual premium. The risk credibility is graduated in accordance with size, and there are two other size limitations; the "Q" point, and the self-rating point. The propriety of the qualification limitations seems well established, discussions turning mainly on the point of its amount, as to which there is, of course, an issue of reasonableness. The propriety of giving a big risk a greater credibility for its own experience than a smaller one is so well justified actuarially that the point of discrimination has not been raised.

(d) *Loss and Expense Constants.*—Along about 1926 the stock compensation carriers started in on a problem designed to meet the fact that they were losing heavily on compensation insurance, being saddled with the least profitable end of the business and heavily handicapped in competition for the larger risks against participating carriers doing business at an expense cost only half as great as theirs. The first stage of the contest involved (1) a move for modification of the experience rating plan (2) a move for meeting the fact that experience demonstrated a loss ratio on the smaller risks higher than on the larger risks. (3) a move for meeting the fact that the expense loading yielded less than enough to cover actual expenses on the smaller risks, far more than enough to cover actual expenses on the larger risks. The non-stock carriers denied the facts, and strenuously, and for a time, successfully, blocked investigation by the National Council, so that the first stage of the contest came to issue in the Compensation Insurance Rating Board in New York. There, after investigation, the non-stock carriers ultimately agreed to a modification of the experience rating plan, and to the introduction of a system of loss constants, varied by broad industry groups, to be added to the premium of risks below the size necessary to qualify for experience rating. This latter step affected an increase on the rate of the smaller risks, which in terms of percentage decreased as the risk increased in size. The excess premium gained thereby was designed to be offset by a decrease in manual rate: in New York, it was utilized to take up the rate deficiency produced by the experience rating plan, which, being applied to a rate level higher than the rate level indicated by the experience of the rated risks, normally produced an excess of credits over charges.

Ultimately, loss constants found their way into other jurisdictions, and in 1934 were approved for general use by the National Association of Insurance Commissioners.

The anti-discrimination principle apparently does not prohibit their use. The fact that there is a differential by size of risk is met by the fact that such differentials are also involved in the minimum premium rule and in both the schedule rating and experience rating plans. Similarly the use of a flat constant is met by the fact that a flat constant also appears in the minimum premium rule. The anti-discrimination principle does not require that rates be made in any particular way: what it does require is an equitable distribution of the rate burden. Such opposition as supervisory officials have occasionally evinced seems to be based, not on a point of law, but on the practical consequence of laying a burden on the smaller risks. The plan in common use calls for a determination of loss constants on experience, with a counterbalancing reduction in manual rates. But local conditions affecting small risks and the great casual variations commonly met in dealing with relatively small blocks of experience make it practically impossible to stick very close to the actual experience, especially in the smaller states. Several courses are possible—to incorporate some feature of weighting in the plan: to make use of national trends: or simply to modify results by judgment. The latter course has been the one generally followed, and is on all occasions the theme of lively partisan sniping, which is not to be taken very seriously. On a recent occasion, the non-stock carriers moved for a set of constants in accord with their contentions—and when the stock carriers refrained from voting, and permitted the motion to prevail, evinced a ludicrous consternation. Very evidently they wanted the constants as proposed by the other side, but felt obliged to make an objection merely for the record. It is not intended to claim that on all occasions the criticisms have been baseless: it is undoubtedly better to proceed by a definite plan than on judgment: but when a plan produces indefensible results, and a better plan is not presently available, the obvious and sensible thing to do is to use a rule of reason. Regrettably, no plan is perfect: indeed it is only under certain conditions where risks are very numerous, and are either very uniform or fall naturally into homogeneous classes, or vary regularly in accordance with elements measurable by a rating plan, that mechanical methods of producing rates are at all possible. Too great a reliance on rule and method leads to as absurd and indefensible results as too great a reliance on judgment. Common sense is required to tell when to use the one and when the other. The anti-discrimination, principle doubtless points to use of rule and method where practicable; but it probably does not eliminate the element of judgment altogether. If it did, it would necessitate the elimination of special minimum premiums, and a number of other rating devices; and how much would be left of the fire schedules if all judgment elements were eliminated is a thing pertaining to the calculus of infinitesimals.

Loss constants are not used in some states because of administrative objection, in others because difficulty in computation: but these states are few.

The expense constant touched on a vital point. The proposal was, to carry the constant contained in the minimum premium rule up to the point where experience rating begins, and make a reduction in the percentage expense loading sufficient to offset the premium gained thereby. The deduction was 2.5 points of loading for a $10 constant: equivalent to about 4% reduction in manual rate. This cut the margin of advantage of the non-stock carriers, and produced a contest that was fought out in every regulated jurisdiction. The legal side of the controversy was based on the anti-discrimination principle; and here two points were involved not present in the other controversy.

(1) Stopping the loss constant at the point where experience rating begins has behind it the fact that experience rating encourages loss prevention, this making a difference in the loss experience of risks above and below the point *a priori* probable. There was not the same indication of a change in expense at that point, and this, it was urged, made the plan arbitrary. This point was taken seriously enough in some states to produce a requirement that the constant be applied to all risks. More commonly it was felt that practical convenience justified stopping at a point where the constant, percentage-wise, constituted but a minute fraction of the rate, and that the place where loss constants stopped was the natural point.

(2) Certain of the anti-discrimination provisions make specific reference to risks of like hazard, or risks having equal degree of protection against accident. It was urged, here and elsewhere, that this forbade differentials predicated on expense. To be sure, there was, and had been for years, an expense constant in the minimum premium rule. To be sure also, hazard means neither more nor less than the chance the underwriter takes, and expense is a natural and important element of that chance; though, to be sure, certain elements of expense are not contingencies but certainties. Differentials based on expense are the very foundation of the rating operating of public service companies, and are common enough in insurance. The position was, therefore, an unfortunate one, and had it generally been maintained would have proven disastrous enough. As it was, expense constants were ruled out in one or two jurisdictions, and disapproved in others because of the burden on small risks. For the greater proportion of the business, expense constants were used, though there was variation in size, and in method of application.

The National Association of Insurance Commissioners in 1934 left the question of expense constants *in statu quo*. New York approved an expense constant, but after the point of expense differentials cropped up again in connection with the retrospective rating plan, put the question to rest by amending its anti-discrimination law so as to permit expense differentials.

(e) *Graded Expense Loadings.*—The second stage of the stock carrier program was a direct attack on the expense problem in the larger risks, the proposal being to graduate commissions and to make expense loadings for the larger risks reflecting the saving in expense caused by this graduation, and carrying also a certain graduation in expense elements other than commissions, designed to reflect the smaller proportional expense cost of the larger risks.

This attempt ran over the years 1930-1933, and involved a contest not only with the non-stock carriers, but with their own agents, and an entirely needless controversy with the Insurance Commissioners. The first stage was an amendment of the constitution of the National Council, which in effect permitted the establishment of separate expense loadings for stock and non-stock carriers. The second stage was an actual rate-filing, in connection with a large requested increase in rate levels. The stock filing carried a 40% loading for the first $1000 of premium, 27.5% for all premium in excess of $1000. The non-stock filing carried a uniform expense loading of 37.5%. The dual filings entailed contests in state, after state and the results were so unsuccessful that both sides called a truce, and for the time being the graded expense loading was dropped.

The merit of the proposal is better recognized today than it was then: and the feeling of agents is not the same. Here and there, graded commissions have actually been adopted: and the principle of graded expense loading as embodied in the retrospective rating plan has been very generally adopted. The principle laid down by the Superintendent of Insurance of New York, "If there is an actual difference in expense, it is discriminatory not to make a differential" is eminently sound. That the grading of commissions by size of risk involves a discrimination is patently absurd.

(f) *The Retrospective Rating Plan.*—The retrospective rating plan was the next essay of the stock carriers to deal with the big risk proposition. Through the graduation of the minimum retrospective premium and the basic premium, a graduation of commissions and of other expense was practically, and very cleverly effected. It met the usual attack under the anti-discrimination law: but its adoption in all but five states ought to be sufficient answer.

(g) *Regulated and Non-regulated Insurance.*—There are a great many risks which involve not merely compensation coverage, but coverage of non-regulated casualty lines: others which involve coverage in several states, one or more of which may not be regulated. A carrier can, and on occasion does, write the compensation part of the risk subject to rate regulation in strict compliance with approved rates, rules and rating plans, but effects a competitive rate by an operation on the non-regulated rates: in some cases making in a separate policy a retrospective adjustment based not merely on what the policy covers but on the compensation policy as well. Ordinarily this falls outside the anti-discrimination provisions in the compensation act, though in Minnesota and Wisconsin there are provisions defining the practice, so far as non-regulated lines are concerned, as discrimination. General anti-discrimination laws may be applicable; and there is constructively a violation of the spirit and intent of the rate-regulatory law, compliance being only technical and ostensible.

All that can be said in favor of the practice is, that the rate regulatory law, insofar as it holds all companies to a single level of compensation rates, establishes a condition whereby there is a great deal of profit in the large risks: and if company A can get that profit back to the risk by means of a participating dividend, company B, which is not in position to declare a participating dividend, must effect a like result somehow or lose the business. However, the practice is not peculiar to non-participating companies. Where there is something worth competing for, and direct competition is barred by the law, it takes place around the corner. Some part of the question would lose its significance with the coming of a graded expense loading.

(h) *War Contracts.*—The war produced a huge number of contracts let by the Federal Government for construction and operation of war activities, some on a lump-sum basis, more on a cost-plus-a-fixed-fee basis. These required a lot of insurance in the casualty lines, with workmen's compensation well to the fore. Payrolls were bound to be high, and wage scales, overtime and double time bade fair to make the compensation part of the risks inordinately profitable.

The War Department asked for competitive bids, and lively bidding ensued, wherein quotations on lines other than compensation ran absurdly low, and wherein guaranteed participating dividends figured. The War Department indicated an intention to take participating dividends into consideration, under certain restrictions, in determining the lowest bidder: and this brought about the making of special rate filings for such contracts, commonly styled, deviation rates. Briefly, the regular pure premiums were used: but generous cuts were made in expense. The stock filings were generally 20% below manual, the non-stock filings 10%.

This was justified in the filings on patriotic grounds, and far be it from the writer to doubt the patriotism of the carriers. But the motivating cause of the stock filing was in part at least to meet competition: and the non-stock filing was in part conditioned on the stock filing.

It is probably not discriminatory to give differential treatment to governmental risks: the peculiar position of the government, especially in time of war should justify it. And, as indicated in Section II of this paper, differentials made to meet competition are not *per se* discriminatory, if not forbidden by the terms of the law.

The so-called deviation rates were pretty generally approved, though a few states declined approval: others insisted on the same deviation for stock and non-stock carriers: still others took variant action.

The war contracts, specifically the cost-plus-a-fixed-fee contract produced a unique underwriting device, the so-called comprehensive plan, wherein most of the common casualty lines were brought within a single instrument. The plan took the agent right out of the picture, substituting a functionary who might be an agent or broker, paid by the assured, for services in rating and scrutinizing audits and loss estimates, on a scale, graded by size of risk, but moderate enough to pass as a proper service charge. The expense allowance was graded also: and the rates on the collateral lines were otherwise reduced below manual: this reflecting the way such rates had been cut in the competitive bidding. The comprehensive plan was generally approved, though some supervisory officials obviously disliked it, and a similar distaste was registered by state funds who were not in a position to write the collateral lines.

All told, the war contracts would seem to furnish some precedents for a fairly liberal interpretation of the anti-discrimination laws.

(i) *Rejected Risks.*—There are always risks which find difficulty in obtaining compensation insurance. A good part of them are unattractive because of bad record for payment of premium and unwillingness to cooperate with the insurer in matters of accident prevention, payroll audit and the like. There are some risks uninsurable by reason of location, bad loss record, or other elements indicating the normal rate not a fair measure of the hazard. The only feasible way of insuring such risks is by a deviation from normal rating procedure. No discrimination is involved in such procedure, the risk being distinct from others in point of hazard. But, as indicated, all laws do not permit of deviations upward. There are one or two states where the law definitely provides for departures by common consent, approved by the supervisory authority. Most states having compulsory provisions for covering rejected risks have provision for special rating treatment; elsewhere, inability to give special rating treatment may complicate the coverage of such risks under voluntary plans.

(j) *Equity Rating.*—Equity rating is commonly not used in regulated states. In non-regulated states it is used by company bureaus either to adjust rates in cases where the regular rating methods produce injustice—and there always are such cases—or to meet competition. The first practice does not seem discriminatory, and as indicated in Section II hereof, differentials to meet competition are practically necessary, and do not necessarily involve a discrimination. That is not to say that all equity ratings are defensible.

(9) *Participating Dividends.*—Compensation insurance contains a very large element of insurers operating participation plans: mutual companies, special employers' mutuals, reciprocal exchanges, participating stock companies and state funds. It is very common for a compensation rating law to recite, as do the fire rating laws, that the law is not intended to prevent the operation of participating plans. Such references of regulatory character as are contained in the laws are:

(a) The laws providing for the setting up of state funds and of employers' mutuals very often contain regulation of rates and make provisions for grouping of risks for rating and dividend purposes.

(b) The states of California and Texas have provisions more generally applicable. Dividends declared on California policies must be from surplus derived from California business. In Texas, dividends are required to be approved by the supervisory authority.

It would seem that there are certain general principles that ought to apply to dividends of participating carriers. Of late years there has been a perfect plague of participating plans, seeking to declare dividends by underwriting groups and even by single risks. Some of these are genuine divisions of surplus, and are therefore undoubtedly participation plans. Some seem to be guaranteed returns on contingency, referring in no way to surplus, but payable in any event. These are rating plans, and must be judged in accordance with the rating law. The distinction is not clear-cut: in some plans it is hard to say to which category they belong.

As to true participating plans, it is entirely possible that a company may elect to treat all its policy-holders on a uniform basis. It may instead separate policy holders by line of insurance, by state, by groups of risks or by single risks, provided the law so permits. So long as the dividends are from surplus and are equitably apportioned, the process is just enough. Equitable apportionment would seem to require recognition of the earnings in the dividend group: though in case of small groups or single risks, some recognition should be given to the fact that the smaller the group or the risk, the more highly casual its underwriting experience. In a general way, the principles of rating apply to dividends: experience and its credibility are properly the basic elements of both. A wide departure therefrom, or the deliberate use of dividends for competitive purposes, at the expense of other classes of policyholders, is as objectionable as would be the making of a special rate for a favored class of risks, and is essentially discriminatory. Regulation of participating dividends is far less advanced than regulation of rates, but as indicated above, some states have found the problems closely allied.

(10) *Other Regulations.*—Incidental to his authority over rates, the supervisory official has undoubted right to inquire into all practices bearing on the justice of the rate filings. How rates are applied to individual policies, how classification and rules are observed, how payroll audits are made, how loss estimates are set up, are all matters strictly pertinent to the inquiry. Occasionally explicit powers of supervision over these matters are conferred. Right to verify audits, and duty to do so on complaint appear in a number of laws.

The matter of expense goes into the detail of company management. In all these cases the issue is, how far are the rate filings justified? How much is it reasonable to charge to cover expenses? It is not so often that sweeping inquisition into these matters is made: if it were, rate hearings never would end. The inquiry is more like to touch on particular details. Thus, very early, it was settled that 17.5 points and no more should be inserted in the loading to cover acquisition. This was only indirectly a regulation of commissions: direct authority must probably be specifically conferred.

(11) *Conclusion.*—The compensation rating laws represent the most striking experiment in rate regulation and on the whole the most successful. Supervisory officials, rating organizations and companies have between them achieved a very considerable standardization of underwriting forms, manual classifications, manual rules, rating plans, and statistical methods: and have developed well-defined methods of producing and applying rates. Points of difficulty that have arisen seem to flow in part from the mutable character of industry and the employer-employee relationship: from the existence of a highly competitive situation; with a certain delay in adjusting laws and the views of supervisory officials to meet difficulties as they arise. But the attitude of supervisory officials has been by no means unsympathetic, the attitude of companies, on the whole, by no means uncooperative: and after cataloguing the wars of the past it is only fair to repeat that the two groups of companies brought together in non-partisan rating organizations, have developed quite as much cooperation, mutual consideration and sympathy as could reasonably be expected of active competitors. All this would argue well for the future if the future were not generally so obscure.

IV. Rate-Regulatory Laws Applying to Casualty Insurance Lines, Other than Workmen's Compensation

The rate-regulatory laws applicable to the casualty lines consist of the following:

(a) *Anti-Rebating and Anti-Discrimination Provisions.*—The greater part of these are listed in Appendix V. Some few, applicable to fire and casualty insurance or to specific casualty lines are cited in Appendix III or referred to therein. The laws listed in Appendix V are described in part VI of this paper. Those mentioned in Appendix III are:

Iowa

An anti-discrimination and anti-rebating law, described in Appendix IV applying to casualty insurance generally.

Maine

Two provisions, one an anti-discrimination and anti-rebating law applicable to liability insurance, the other a brief provision applicable to motor liability bonds or policies, prohibiting rebates, or charging premiums at a rate less than specified in the policy.

Maryland

An anti-discrimination and anti-rebating law, described in Appendix I, having administrative provisions for removing discriminations.

Minnesota

A law applying to motor vehicle liability insurance, prohibiting discriminations, rebates, and refusals to issue the standard form of policy.

New Jersey

Two laws: The first a generally applicable anti-discrimination and anti-rebating law, described in Appendix I with provisions as to filing, schedule rating, administrative removal of discriminations and as to agents' commissions: the other applying to automobile insurance, prohibiting discrimination in rates and dividends between policies covering financed automobiles and policies covering other automobiles.

Pennsylvania

Prohibits discrimination for all casualty lines except fidelity and surety.

Tennessee

Anti-discrimination law with filing provisions applying generally to casualty insurance.

Texas

Anti-rebating law applying generally to local recording agents and solicitors.

Vermont

Anti-discrimination and anti-rebating law.

(b) *Minor Regulatory Provisions.*—

Under this head may be listed:

Iowa

A provision calling for preparation of short rate tables by the commissioner, and forbidding companies to charge more than the sums indicated by those tables.

New Mexico

Filing provision.

Oregon

A generally applicable provision requiring filing of rates, etc., prohibiting deviations and discriminations.

Texas

A lately enacted law authorizing the Board of Insurance Commissioners to make and promulgate special rates and rating plans for national defense projects.

Washington

A generally applicable provision like that of Oregon.

(c) *Rate Regulatory Laws Generally Applicable.*—

The laws here mentioned apply to all casualty lines, and are in substance as follows:

Kansas

An act described in Appendix III making regulation of rating bureaus, requiring filing of organization data and other details and providing for their examination. A common expert provision is written into the law. Companies and Bureaus are required to make rate filings at the request of the commissioner, and there are anti-discrimination and anti-rebating provisions and an administrative process for removing discriminations.

Louisiana

An act described in Appendix II. Generally it charges the Louisiana casualty and surety rating commission to determine and fix adequate and reasonable rates on all casualty, surety, fidelity and bonding risks in the State, not discriminatory as to any class. These rates are mandatory as to all insurers, subject however, to a process for hearing on requests for rate changes, and to applications for the approval of deviations. Discriminations and rebates are forbidden, and administrative process is provided for removing discriminations and correcting rates found to be excessive.

New York

An act described in Appendix I, making general and elaborate regulation of rating bureaus. (Exceptions noted in reference.) Rate filings are generally made on request of the superintendent, and may be made by the carrier individually or by a rating bureau. Filings must indicate clearly the coverage to which the rates apply. Rates must be adequate, reasonable and non-discriminatory, and must give consideration to experience, catastrophe hazards, reasonable profit, and to participating dividends. Carriers may not make deviations from bureau rates, or, if they file individually, from the rates last on file, except that deviations from bureau rates may be made on application, approved by the superintendent. The deviation must be a uniform percentage deviation, and may be disapproved if found to be inadequate, unreasonable or unfairly discriminatory. There are an anti-discrimination provision, and a number of provisions as to rebates. There is an administrative process for removing discriminations. The rate control provisions are: (1) A power to order filings withdrawn if found to be inadequate, excessive, unfairly discriminatory or unreasonable. (2) A power to order adjustment of rates found to be excessive, discriminatory or inadequate.

North Carolina

An act described in Appendix I applying to insurance generally including surety bonds (exceptions noted in reference). The act makes brief regulation of bureaus. Filing of rates, etc., is at the discretion of the commissioner. Discrimination is prohibited and an administrative method for removing discriminations is provided.

Vermont

An act, described in appendix I, applying generally, including surety bonds (exceptions noted in reference). The filing and anti-discrimination provisions are like those in North Carolina, but there is added a statutory process before a board of three for the correction of rates found to be excessive.

(d) *Rate-Regulatory laws applicable to motor vehicle insurance.*—In addition to laws noted under the three preceding divisions there are a number of laws specifically applicable to motor vehicle insurance. All these are noted in Appendix III.

Illinois

A law applying to motor vehicle insurance rates. Rate filings are required and may be made by a bureau designated by the carrier in a sworn statement, giving name of bureau, address, and an undertaking to be bound by the bureau's rates. Amendments and changes are likewise to be filed. Rates must not be unjust, discriminatory or preferential. Provision is made for special "fleet" rates.

Indiana

The fire rating law covers automobile fire and theft. A concluding paragraph regulates rates for theft, collision, personal injuries and property damage. The law contains (1) a filing provision, (2) a provision as to filing changes in rates on file, (3) a general prohibition of discrimination, rebates and deviations, (4) provision for deviations and percentage discounts on "fleets" based on the underwriting experience of the "fleet." Fleets are defined, much as in Illinois.

Massachusetts

In connection with the compulsory automobile law, the commissioner is required to establish fair and reasonable classifications of risks and adequate, just, reasonable and non-discriminatory premium charges. Rates are made annually in September for the next calendar year. These rates are required to be used. There is a provision for making alterations and amendments, and for court appeal. A later provision is for establishing rates for insurance of liability for guest occupants; those rates, however, are minimum rates: parties may contract for higher rates.

New Hampshire

An act requiring carriers writing automobile bodily injury and property damage insurance to file for approval with the commissioner their classifications, rates and rating plans.

New York

The general rating law, noted above, contains a special provision that rates for motor vehicle insurance policies or surety bonds required by law be filed and approved before becoming effective.

North Carolina

An act requiring the carriers writing automobile liability and property damage insurance to file classifications, rules, rates and rating plans. Carriers may file rates, etc., of a bureau of which they are members. Filings must be approved or disapproved within 15 days. Bureaus organized in the state for making and administering rates provide for equal representation of stock and non-stock carriers on committees. Carriers are required to write insurance in accordance with rates on file with the commissioner. An administrative process is provided for ordering adjustment of rates found to be excessive, unreasonable or unfairly discriminatory. Orders are subject to court appeal.

Pennsylvania

A peculiar statute prohibiting (in connection with the financial responsibility law) refusal to issue a policy or bond because of the race or color of the applicant and discriminations in rate as to such persons.

Texas

An act applying to motor vehicle insurance, authorizing the board of insurance commissioners to determine and promulgate just and adequate rates of premium for any form of insurance on motor vehicles, including fleet or other rating plans and an experience plan: but only one plan for each form of insurance. The commission has power to prescribe policy forms; and participating dividends are required to be approved. The act prohibits special favors, etc., not specified in contract, discriminatory dividends, premiums, or benefits, rebates, etc. There is provision for hearing on grievances and for court appeal.

Virginia

An act applying to motor vehicle liability and collision insurance. Carriers are required to file with the corporation commission manuals, rates, rating plans, etc., and all deviations, increases or decreases, 30 days before their effective date. Hearings are provided in case filings are not approved within 30 days or are disapproved. A temporary 90 days approval may be made and extended. Rates must be fair, reasonable and non-discriminatory. A local, non-partisan bureau is provided, of which all carriers must be members; except that, where property damage and collision is written in connection with automobile fire and theft. The Virginia Insurance Rating Bureau (see appendix I) may be designated.

(e) *Liability Insurance.*—Wisconsin has a rate regulatory law applicable to liability insurance generally (Appendix III). This act prohibits:

(1) Discrimination or use of discriminatory rating systems.

(2) Insurance against other hazards at rates lower than regular rates for the purpose of evading the law.

(3) Unjust or unreasonable rates.

(4) Use of rate or classification not properly applicable to the risk.

Rates and manuals must be filed before becoming effective. The commissioner may require a company to modify a rating plan found to be unfair or discriminatory. An administrative process is provided for correcting rates that are discriminatory or unreasonable. Orders are subject to court review.

(f) *Other Casualty Lines.*—Plate glass insurance is subject to regulation under the Oklahoma Law (Appendix I). Boiler and machinery insurance is, in Pennsylvania, subject to a restriction that the rates must not be less than 1½ times the charges prescribed by city ordinance for the inspection of steam boilers.

(g) *Fidelity and Surety.*—Laws general in scope probably do not include fidelity and surety business unless specifically applicable thereto. All of the acts mentioned in (c) above, are specifically applicable. There are besides two special statutory provisions, cited in Appendix III.

Nebraska

A provision empowering the Department of Trade and Commerce to investigate premium rates and fix a maximum schedule of rates of premium for each and all the different kinds of bonds, contracts, etc. Carriers may charge lower rates, but not higher.

Wisconsin

Rate-making organizations are required to file their articles of agreement, etc. Companies are authorized to employ experts. Discrimination in rates, etc., and rebates are prohibited. There is the common administrative process for removing discriminations.

Conclusion.—From the above it will be seen that there is little of an unusual character in the laws imposing regulation on casualty insurance. The most notable body of laws are those applying to motor vehicle insurance. It is natural that as motor vehicle insurance is made compulsory, there should be rate regulation. The field has been notably competitive, and there are some indications in the laws and in decisions and rulings of the attorney generals of trouble over group policies, rating plans, notably the safe drivers' reward plan, and the insurance of financed automobiles.

Next largest is the body of references to fidelity and surety. It may be doubted, however, if more than a very general sort of regulation is expedient. The variety of contracts written is very large, and the lack of relation between the several kinds of contract, and the non-homogeneity of the risks in some of the classes of contract make experience tests hard to apply, and the matter of rate making as well as of rate regulation, a somewhat difficult operation. Losses too are of a peculiar kind: often for very large sums, with considerable salvage operations often necessary; losses too are sometimes concealed for a considerable time: and, due to the close linkage of the line with the economic cycle, there is a very important catastrophe hazard. It is questionable, therefore, if there can be much rate regulation save in connection with exceptionally large classes of risks.

As to the lesser casualty lines, ability to regulate as to adequacy and reasonableness depends on the existence of sufficient standardization in policy forms to make experience truly comparable and the existence of sufficient volume of experience to give satisfactory tests. Lacking these, regulation must confine itself to discrimination: and unless risks fall naturally into classifications, discrimination becomes very difficult to detect. As in other lines, too, the existence of competition may make it desirable not to have too rigid an anti-discrimination law. On the other hand, there has been some little use of the more sparingly regulated casualty lines for the purpose of making competitive rates on big risks where it was necessary to write the compensation policy at approved rates. This seems the chief reason for extending rate regulation to the smaller casualty lines.

V. Rate-Regulatory Laws Applicable to Life, Accident and Health Insurance

Life Insurance.—No branch of insurance is more copiously regulated than life insurance. But legislation undertaking to make direct regulation of insurance rates as to adequacy and reasonableness is practically unknown, the only legislation of the kind being a very brief provision in the Maryland Law, referred to in Appendix IV, which provides that the commissioner may order a company writing life insurance at inadequate rates, to cease to do so. There is indeed little need for such regulation. The regulation of life insurance contracts, requiring certain standard provisions and forbidding others, coupled with company practices, have produced types of contract capable of being valued as to the hazard assumed on an actuarial basis and in accordance with tables prescribed by law. The valuation indicates the reserve to be set up against policies in force. Practically every company must charge rates adequate to set up the reserves, and a number of states have additional provisions requiring the setting up of deficiency reserves in case of premium rates less than the net rates indicated by the tables. Thus no company save one unusually well equipped with surplus can make rates much below the tabular limit without courting the hazard of impairment. Adequacy of rates is thus secured as completely as is desirable, though companies can, and on occasion do, make rates below the tabular level. The American Experience Table provided for some age groups a fairly generous margin, and for a long time interest earnings generally ran well above the tabular assumptions. The latter element, however, furnishes today a very serious problem; and with the reduction of the margin goes reduction of any tendency to take chances on the rates. Reasonableness in rates is effectually secured by laws such as exist in some leading states setting up expense limitations. These facts, and the predominance of the mutual type of insurance, have kept the rate question from coming into the regulatory field, as to adequacy and reasonableness. Nor is there in life insurance a rate compact problem, sufficient to arouse the attention and criticism of supervisory officials or legislators. Between the minimum practically established by the reserve laws and the maximum practically established by the expense limitations there is a field where competition can exist; and the limitations on policy forms are not so severe as to make a certain competition in producing policy forms with an eye to salability impossible.

Life insurance moveover is upon natural units, which fall naturally into classifications by age. Other methods of classification are possible, such as occupation, physical condition and the like. But none of these require for rating purposes more than a relatively clear-cut classification system and classification differentials, and the latter can be nicely adjusted to the hazard. Rating plans are not necessary in insurances on single lives: in group insurances they have their place: and here some use has been made of the experience-rating principle as developed in workmen's compensation insurance. Thus, life insurance rating methods are relatively simple, and not such as tempt legislative inquisition.

The point most closely connected with rates on which critical investigation has chiefly turned is the point of expense. Thus, the main regulation of the rating practices of life companies has been directed at discrimination between risk and risk, and the kindred subject of rebating. Occasionally a requirement for filing rate manuals, etc., makes its way into the laws; but this is exceptional, and hardly necessary. The rates the company regularly charges can always be ascertained, when that is material: the rate written in the policy speaks for itself.

Life Insurance Anti-Discrimination Laws.—The ordinary anti-discriminatory provision is a simple prohibition of unfair discrimination between insurants of the same class, having equal expectation of life in the amount or payment of premium or rates thereof, in dividends or benefits, or in the terms and conditions of the policy. The forms of the provision show minor variations, some of which look like inexpert attempts to follow a model. The most common variation is to substitute "of" for "or" in the phrase "the amount or payment of premium"; thus transforming what was intended to be a prohibition of discriminations in the amount of premium, and discriminations in the method of premium payment, into a single somewhat obscure prohibition. Few states lack an anti-discrimination provision applicable to life companies.

A second provision, found in a number of states, all north of the Mason and Dixon Line, is a prohibition of discrimination against persons of African descent. This provision is long and somewhat detailed, varying somewhat between states, but generally prohibits distinctions or discriminations (a) in premiums or rates, (b) between persons of the same age, sex, general condition of health and prospect of longevity, (c) in requiring rebate or discount on death benefits or in stipulating in advance for acceptance by parties in interest of a sum less than the full amount. To this the New York law adds a provision that companies shall not reject an application, refuse to issue a policy, or make reduction of fees and commissions to agents solely because the applicant is wholly or partly of African descent. The main variations in the provisions seem to be on this last point. The various provisions supply plenty of internal evidence that for one reason or another some companies have done what they could to avoid insuring colored risks. The justice of the provision depends on whether there exists a material difference in point of hazard, as between white and colored risks.

Life Insurance Anti-Rebating Laws.—To the general anti-discrimination provision are usually attached two or three common provisions aimed at discriminations or inducements to insurance effected by things done by companies or their agents outside the terms of the policy. These are:

(1) A provision forbidding the making of contracts and agreements except as the same are expressed in the policy. This is in line with very common statutory provisions that the policy shall contain the entire contract between the parties.

(2) A provision, differing not a little as between law and law, but generally prohibiting the making or the offer of rebates of premium or of agents' commissions, the giving of special favor or advantage in dividends or benefits: the giving of other inducement or valuable consideration not specified in the policy. This is often so surrounded by language and so garbled that its intent and meaning is thoroughly obscure.

(3) A provision forbidding the offer to sell, give or purchase, or the actual selling, giving or purchasing, inducement or insurance, of stocks, bonds or other securities, dividends and profits derived therefrom or anything of value not specified in the policy. This too is often developed in language probably intended to nail down all possibilities of escape, but actually thoroughly obscuring the meaning.

To the above are often added prohibitions of misstating the date of issue of a policy or misstatements of the age of an insurant; also prohibitions of paid employment or contracts for service, inserted in the second and third provisions as the statutory draughtsman sees fit.

(4) Often there is a list of exceptions. The meaning of the provisions is

often magnificently vague: and, in fact, there has been a great deal of litigation under these laws, and an even greater number of attorney general's opinions. Undoubtedly it aims at real evils, and at practices of questionable merit: but a strict and rigorous interpretation would also bar many practices eminently proper. Exceptions sometimes added, that companies may pay agents commissions on their own policies: that agents may share commissions with other agents or brokers: that ordinary credit may be allowed: that notes may be taken for premium: that companies may insure their own employees, deducting the commission from the premium: that companies may give medical examination or nursing service: bespeak a nervousness here and there as to just what the law means. The writer has on occasion been seriously asked if the provision prevented the compromise of a debt for premium where the debtor was in financial straits or actually bankrupt. The writer usually replied that he did not know the precise meaning of the statute, but did not intend to apply it as barring what might pass as normal methods of transacting business. California, in trying to clarify its law, expanded it into a regular code.

Exceptions of a more substantial character, rather frequently made, are:

(1) Exception of the practice of industrial life companies in making a reduced premium charge in case of policies where premium is paid direct to the office.

(2) Exception of the practice of non-participating life companies in making adjustments of premium proportioned to earnings or savings: described as "bonuses" or "abatements."

(3) Exception of group life contracts.

It will be noted that these last two touch upon fields distinctly competitive. There is another form of law occasionally met, prohibiting the sale or issue of company stock, agency stock, or the making of special advisory board or other contracts as inducements to insurance.

Another provision, sometimes incorporated in the regular anti-discrimination and anti-rebating provision, sometimes put in a separate section, is a prohibition of the receipt of rebates, etc.

To this are commonly added some formidable looking provisions, to the effect that no one shall be excused from testifying on the ground that it would tend to incriminate himself, coupled with an immunity provision.

A very few laws contain the ancient and generally discredited provision entitling the complainant to half the penalty.

A number of the laws of this description are, as they stand, thoroughly obscure and should be redrafted. It may be said as to all that it is ordinarily impossible to police the business closely enough to make a thorough enforcement; but that can be said of other laws as well.

Accident and Health Insurance.—Accident and health insurance, like life insurance, is not at all closely regulated as to rates; indeed, the variety of accident and health contract forms makes rate regulation almost impossible. The reserve laws, as in life insurance, make for the observance of some measure of adequacy in premium charges, and competition suffices to keep premium charges from becoming unreasonable—that and the fact that accident and health protection is not in the least a necessity and so has to be sold at an attractive price.

The standard provision law, adopted in a number of states very frequently has two rate provisions inserted:

(a) A provision annexed to the provision for filing policy forms for approval, requiring the filing also of classifications, rates, etc. Apparently this is inserted as an element bearing on the question whether the policy form should be approved.

(b) A very simple anti-discrimination provision, prohibiting discrimination between risks of the same class in point of premiums and rates, benefits, terms and conditions.

Accident and health insurance is excepted from the New York rating law, but not from the laws of North Carolina or Vermont (Appendix I). More generally, rating laws, other than general anti-discrimination and anti-rebating laws either expressly or by limitation of terms do not apply to life, accident and health. Appendix IV gives a brief statement of the laws applying to these two lines.

VI. Marine and Inland Marine Insurance

Ocean marine insurance, including protection and indemnity coverage, is very generally excepted from the fire rating laws and from more or less general laws like those of New York, North Carolina and Vermont. In Texas, the fire rating law specifically applies to the shore end of marine risks, insured against fire. This is an unusual provision. Anti-discrimination and anti-rebating laws general in character do not as a rule except marine insurance. The California anti-rebating law, however, makes exception of the customary allowance to brokers on marine risks.

Ocean marine insurance is a thing by itself. Its risks are big, and the hazards involved are subject to rapid variation. The risks are in nature transitory, moving between port and port, and have a certain international character. A very considerable section of the underwriting of ocean marine risks is done outside of the United States. All these constitute excellent reasons why rate regulation is not practicable. Inland marine is a somewhat different story. It is frequently excepted from rate-regulatory laws, usually with the stipulation that the exception does not cover inland automobile lines. Some of its risks are properly interstate, and therefore should be omitted from rate-regulatory laws. The fire rating laws very commonly make specific exception of property in the course óf transportation, in the hands of common carriers; of rolling stock of railroads; and of property of common carriers used in the transportation of merchandise, freight and passengers.

There are, however, certain inland marine contracts wherein the transportation element is very minute or the barest of possibilities. It is by no means so certain that these are, or ought to be, exempt from rate-regulatory laws covering hazards of the same type. On the other hand, it needs to be borne in mind that coverages of more than a single hazard may have a real utility and a reason for being, and that no feature of the insurance laws is less in accord with the spirit of the times than attempts to keep single lines of insurance separate and distinct from other lines. Thus the problem is by no means a simple one.

VII. Miscellaneous

Under this heading are grouped such laws as fall outside the scope of the other sections. The greater part of these are anti-rebating, or anti-discrimination and anti-rebating laws, general or partly general in character. In the main, these are derived from the life-insurance anti-discrimination and anti-rebating laws, adapted in some cases, by merely cutting out the anti-discrimination provisions, in others by trying to generalize them; in still others by uniting an anti-discrimination law applicable to life companies with a general anti-discrimination provision. There are some yet more curious specimens: inserting a life anti-discrimination clause plus a general anti-discrimination clause: a fire anti-discrimination clause plus a general anti-discrimination clause: or all three together.

The anti-rebating provisions generally follow the tenor of the life forms. California has expanded the provisions into a regular code. There are other cases: but the insurance laws, by and large, are not long on originality.

The provision as to issue of stock, advisory board contracts, etc. appears from time to time in general form. Another type of law, seemingly old, but retained in a number of states, is a provision forbidding agents, etc., to charge fees, perquisites and the like in addition to the premium written in the policy. This may be reminiscent of days when agents' commissions were 5% plus a fee collected from the insured.

Conclusion

The rate-regulatory laws exhibit a very large field and a considerable diversity of policies and methods. The question naturally arises, are there any real principles which determine whether rates shall or shall not be regulated, and, once regulation has been decided upon, what degree and what method of regulation shall be imposed. In so complex a matter it is perilous to generalize, and what is here offered is set forth with considerable inward misgiving.

Competition and Standardization.—The anti-compact laws declare the policy of free competition. The rate-regulatory laws declare policies of standardization. Competition and standardization are naturally opposed: each standard erected narrows competitive possibilities up to a certain point. Standardization aids wise competition in so far as it eliminates reckless and foolish competition: beyond that point competition tends progressively to disappear.

Competition is an integral and necessary part of human nature: the natural expression of the restless life within that must seek to exist, to strive and to overcome, and that, as Nietzsche says, ever seeks to surpass itself. Vitality, energy, quick appraisal of present situations and problems, ready resource in devising solutions are its virtues and to these we owe great part of our progress, great part of our new ideas: from these we derive initiative, purpose, and will to achieve. Its vices are, egotism, selfishness, self-assertion, non-cooperation, contempt of logic, impatience of restraint, and an ethics of contest, inconsistent with the ethics of a peaceful, ordered society. Standardization is also fundamental. There is something within us that makes for peace, harmony, reason and equity: that moves us to consider our fellows, not solely as our antagonists or our prey, but persons like ourselves, with reciprocal rights and duties: part of a social harmony which it is our duty to further and improve. From this side of us flow peace and order, cooperation, rule of reason, rule of law and of government; its vices are, a flagging of energy and ambition, a slowing of progress, an exaltation of system, routine and discipline, and a depressing and soul-deadening uniformity and rigidity.

Competition is the quality natural to youth and early maturity: standardization is the quality of the years when we seek to preserve what we have and round out our days in peace. In the state, the virtues and vices of competition are to a degree those of the politician: standardization dwells with the statesman, administrator and bureaucrat. In a private organization the competitive vices and virtues are like to appear in its selling organization: those of standardization in those who order its business affairs and direct its clerical, financial, technical and productive activities. Thus, in respect to a line of insurance or an insurance company, the effect of a predominance of the actuary is to bring it into sympathy with the administrative and bureaucratic side of the state. It accepts regulation rather naturally and probably needs it least. Where the voice of the agent and the selling organization is strong and predominant, it accepts regulation least graciously—and probably needs it most.

Anti-Discrimination and Anti-Rebating.—The point on which the states come nearest speaking with one voice is with respect to discriminations and rebates. General anti-rebating laws are very common: general anti-discrimination laws somewhat less so. These are in the form of simple prohibitions; and similar provisions applying specifically to life insurance appear in almost every law, with a fair number appearing, applicable specifically to fire insurance, casualty insurance or both. Anti-discrimination clauses appear in the standard provisions law of accident and health insurance: anti-discrimination provisions coupled with administrative procedure for removing discriminations have a very prominent place in fire insurance rating laws, appearing more sparingly in those applying to workmen's compensation, automobile and other casualty insurance. Non-discrimination is generally a feature of laws prescribing how rates shall be made or providing for administrative control thereof.

Now anti-rebating laws are directed exclusively at selling of insurance: and anti-discrimination provisions point in part the same way. The elaborate provisions in the fire rating laws for publicity, furnishing information, filing of rates, rules and rating plans, filing and control of deviations, and defining departure from rates on file as discriminations, all seem directed at incidents of selling practices, and point perhaps to the conclusion that a very measurable part of the regulatory problem in fire insurance emanates from the selling side.

Anti-discrimination has, however, a significance beyond a mere rigid and uniform application of rates and rating plans on file. It has reference also to the reasonableness of the classifications made, the reasonableness of the rating plans adopted and the reasonableness of the differentials effected by classification rates or by rating plans. This is the sense in which it is used in laws undertaking to prescribe how rates shall be made, or undertaking to provide for an administrative approval.

Thus the form of the anti-discrimination provision needs to be moulded with respect to what is desired to be accomplished. The life anti-discrimination provisions make reference to but two kinds of differentials—differentials achieved by classifications and differentials measuring expectation of life. Consequently, when new rating methods were introduced, as in group insurance, or differentials based on cost, as in case of insurances on their own employees, or in industrial insurance, in case of premiums paid at the company office, there arose at once a question as to whether the law did not forbid this: and in consequence a number of laws are well-loaded with exceptions. To some degree this is true in case of general laws framed on the life insurance model. The discussion of the effect of anti-discrimination provisions in competition made in Sections II and III hereof need not be repeated. This point, however, should be ever borne in mind, and consideration given as to whether any measurable good is accomplished by turning the anti-discrimination provisions into a means for securing a rigid and uncompromising uniformity that leaves this or that group of companies helpless before its competitors.

Adequacy and Reasonableness.—Beyond discrimination, semblance of agreement ceases. Regulation of rates stopped at that point with regard to life insurance and very generally with regard to accident and health. Supervisory officials were, by and large, satisfied with the way life insurance companies set up their reserves and made their rates. The rating method involved a simple and understandable classification system: and more than once a supervisory official with a life insurance background has voiced a lament that other lines do not exhibit a similar simplicity. There was no disposition to rating compacts: no little competition. Rates could be kept adequate, were generally adequate: the prevalence of the mutual system, and competition alike kept the problem of reasonableness from coming to the fore. There was, to be sure, a recurrent disposition of legislatures to inquire into expense, and states in which this was acute enacted expense limitations. Nothing more was needed.

Accident and health insurance was a highly competitive field with little disposition to the formation of compacts. The diversity of policy forms made a standardization of rating practices difficult if not impossible. The states enacted standard provisions laws and went no further.

The reason why rate-regulatory legislation took place in fire insurance was due in part to the selling situation, in part to a lack, and a very understandable one, of comprehension of the methods used. Speaking in 1911, soon after the enactment of the first rate regulatory laws, Mr. H. E. Dean said:*

"As the Illinois Commission so tersely stated, "In fire insurance all roads lead to the rating question," and the facts all converge into inexorable proof that our long misunderstanding with the public, and the brutal injustice of much of our fire insurance legislation, have arisen more from our lack of an accredited system of measurement, which would extend to everybody reasonable justice, than from a high fire waste and high rates."

At the time, certainly, there was no little unrest on the subject; sus-

* The Philosophy of Fire Insurance, Vol. III, P. 160.

picion that rates were higher than they should be and suspicion of the motives of company organizations. As to how far this is justified is not here material: the unrest was substantial enough to bring about investigation by several state commissions, and a rapid multiplication of rate regulatory laws. These laws tended to emphasize non-discrimination, and, so far as they undertook rate regulation, reasonableness. Adequacy was less prominently mentioned.

The workmen's compensation rating provisions date back to about the same era. The existence of company agreements and the selling situation appear less prominent as motives than a conviction that in the interest of employers and employees alike, rates must be adequate. Adequacy therefore takes first place as a rating standard, with reasonableness and non-discrimination less stressed.

The other casualty lines follow in the wake of the two major classes of law. Motor vehicle insurance is a big line, and compulsory insurance provisions appear here and there, calling as in workmen's compensation for some control of rates. The general laws applicable to the minor lines are not as a rule very stringent.

Adequacy obviously requires, for careful application, an actuarial evaluation of the underlying hazard of loss. This must be the foundation of rates and is presumably common to all carriers. To determine the reasonableness of classification differentials, and of rating plan modifications, actuarial and statistical methods have further application. To this extent, rate regulatory laws indicate the necessity of bringing the actuary into the picture: and it seems likely that state departments generally would be the more favorably inclined to rate systems and rate computations with a sound statistical and actuarial basis behind them.

In all lines this may not be possible. A line abounding in risks that require specific ratings; a line where volume is small; a line with multifarious policy forms; a highly competitive line or a line where catastrophe hazard is very prominent, may require statistical and actuarial analysis to be very highly qualified with judgment; and indeed, wherever he may operate, the actuary is none the worse for having his determinations reviewed in the light of common sense. Too intimate an association with formulas and figures occasionally warps sense of proportion and fitness.

Methods of Regulation.—Substantially there are three methods of regulating rates:

(a) *Review of Specific Rates.*—The common method of regulation as to discrimination, fairly common too as to adequacy and reasonableness, is by administrative order, after notice and hearing. The proceedings may be on complaint or on the supervisory official's own motion. The order is, that the rate be removed and a proper rate substituted.

(b) *Filing and Approval.*—A common method of procedure is to require the filing of rates, rules, rating plans, etc., with power in the supervisory official to approve or disapprove. There are several forms of laws of this kind. The general practice in workmen's compensation acts is to require filing in all cases, and approval as a condition precedent to use. The New York law, while making this requirement for workmen's compensation and compensation and compulsory automobile liability coverage, as to other lines requires filings at the discretion of the superintendent and empowers him to disapprove a filing and order it withdrawn.

(c) *Periodic General Rate Revisions.*—This is the common method in fire rating laws: though the other two methods are used also. Some laws indeed have all three methods.

The writer's preference is for the second method, after the New York practice. The mischief of the third method is, that it may require a revision at a time when no one really wants it. Under the second method the supervisory official can have a revision any time he wants one: and that is quite often enough. The first method is a handy one for inquiry into specific rates, but the second seems a better means of dealing with a general rate procedure.

Single or Multiple Standards.—There is a good deal of divergence in policy on the point of the extent to which the state shall go in its rate determinations. The fire rating laws abound in deviation provisions. Where the state regulates rates for companies individually, the deviation is merely a rate change. Where it deals with companies collectively, deviations are departures from a common rate standard. If deviations are permitted by a mere filing, the standard has no more than a persuasive effect. If what the law wants is adequacy, deviations downward should generally not be permitted: or permitted only after a showing of reasonable cause. Similarly, if the approved rates are regarded as a standard of reasonableness, deviations upward should similarly not be permitted. Reasonableness and adequacy do not necessarily mean the same thing: it is quite possible to establish standards of adequacy and reasonableness and leave an interval in between, as is done in the Wisconsin Compensation Act. But it is more common, where right of deviation is absolutely foreclosed, to establish a single set of rates, styling them both adequate and reasonable.

There are samples of all these types of law in Appendixes I and II. The difficulty with a law of the extreme type is that, if a single rate standard be applied to all sorts of carriers, participating and non-participating, it is inevitably more favorable to one group than the other. The law ought to admit, in such case, of rate levels suited to the reasonable necessities of both sides: then, at least, it deals out even-handed justice to both. If the loss cost factor is properly determined, deviation and competition should, and may properly be limited to the expense element.

Rate Systems.—In the writer's opinion it is an error to tie up rate regulation too closely to a particular method or system. No particular method has any assurance of permanence; none is so good it cannot be better; and a method good today may not fit the needs of next year. Hence, simple, summary provisions, whereunder any and all reasonable methods of classifying and rating risks may be presented for supervisory approval are better than provisions that detail existing methods.

Bureaus.—Bureaus are forbidden under anti-compact laws; hinted at in common expert provisions; recognized by reference in some laws; authorized under others; required under still others. Last in line comes the statutory bureau with compulsory membership.

That the bureau very obviously has come into favor is doubtless due to the fact that bureau practice and departmental practice are closely akin, and contemplate many of the same ends. Recognition or requirement of bureau depends on the necessities of the situation. Unless necessary, the voluntary bureau is to be preferred to the compulsory bureau, if for no other reason, because if a company cannot get out of a bureau, it is at the complete mercy of the majority control. It is at least conceivable, also, that those vested with responsibilities of managing a bureau will seek more sedulously to achieve the virtues inherent in the standardization type of mind and avoid the correlative vices, if they have to justify their existence and hold their membership than if both existence and membership are confirmed by law.

More could be said on this most abounding theme: but perhaps enough has been said for a better understanding of the subject of rate regulation. In closing, be it said, that he who accepts another man's digest of statutes or cases does so at his peril. The writer knows better than most how easily misstatements and omissions are made.

APPENDIX I

RATE-REGULATORY LAWS APPLYING SPECIFICALLY TO FIRE INSURANCE AND ALLIED LINES*

Arkansas

Pope's Digest, 1937, sec. 7722 et seq.

Section 7722 of this law, enacted in 1913, is applicable to all insurers, and requires them to file with the commissioner "a schedule of rates of premium to be charged and collected on contracts of insurance or indemnity." Rates are required in all cases to be "a fixed percentage of the amount insured," a provision which would cause a deal of trouble if rigidly and technically applied. It is also provided that premiums shall be "uniform" for all risks rated under the same schedule. Companies are granted permission to use "common experts" to inspect risks and make advisory rates. This is intended doubtless as a qualification of the anti-compact law. The remaining sections, dating from 1919, constitute a bureau law of the first, or permissive type. The rate-regulatory provisions are:

Filing Provisions.—The filing provisions contained in Section 7722 are cited above. The following sections add the common provision authorizing the commissioner to require the filing of schedules, rates, forms, regulations, etc. with the proviso that surveys and completed schedules shall be asked for only in case of complaints.

Schedule Rating.—The usual provision requiring the inspection of risks rated on schedule, the making and recording of a written survey, and furnishing the owner or his representative a copy thereof on request.

Rate Compacts and Agreements.—The common prohibition of agreements requiring the whole or any part of an insurance to be placed with a particular company, insurer, agent or group thereof; also the common prohibition of agreements as to the making, fixing or collecting of rates except in accordance with the provisions of the law, with provisions that such agreements may be made if in writing and filed with the commissioner and giving the commissioner power to disapprove the same.

Deviations.—Deviations are permitted on notice to the commissioner and the bureau, and the filing of a provision for a uniform deviation on all risks of a particular class or classes, such deviations to be uniform throughout the state. The explicit statement is added that the act is not intended to prevent competition.

Discrimination.—The common anti-discrimination provision, quoted in the summary.

Removal of Discrimination.—The ordinary administrative provision for removal of discriminations on notice and hearing, with right of appeal, and simple provision for the refunding of overcharges.

Rate Control.—Provision is made for the tabulation of company experience of premiums, losses and expenses. Where the tabulation for a five year period shows an underwriting profit in excess of a definite 5%, the Commissioner may order a reduction calculated to produce merely a 5% profit. Reductions ordered may, with the approval of the commissioner, be applied to such class or classes of business as the insurer or bureau may select. An appeal provision is written into the section.

Exceptions.—Apparently none.

Application.—Section 7722 is general in its application; the others apparently relate solely to fire insurance.

Litigation.—*Bullion* v. *Aetna Ins. Co.,* 237 S.W. 716 (1922).

* For laws which have application to fire insurance and allied lines, other than those cited in this Appendix, see other appendices for states listed as indicated.
Alabama, V; Alaska, V; Arizona, V; California, V; Colorado, V; Connecticut, V; Delaware, V; Florida, IV; Georgia, V; Hawaii, V; Idaho, V; Illinois, V; Indiana, V; Iowa, V; Kansas, V; Kentucky, V; Louisiana, V; Maine, III; Massachusetts, V; Michigan, V; Minnesota, V; Montana, V; Nebraska, V; North Dakota, V; Ohio, V; Pennsylvania, V; Rhode Island, V; South Carolina, V; South Dakota, V; Texas, V; Utah, V; Vermont, III; Virginia, V; Washington, V; Wisconsin, V.

Colorado

Colorado Statutes, Ann. 1935, c. 87, sec. 146 et seq.

This act, originally passed in 1919, is of the second type, requiring a company either to maintain or to be a member of a rating bureau. Each bureau must maintain an office in the state, with the exception of reciprocal insurers making their own rates, which may maintain their rating bureau at their home office anywhere in the United States. Rate-regulatory provisions are:

Filing Provisions.—

(a) Reciprocal insurers not maintaining an office in the state are required to make rate filings with the commissioner.

(b) Rating bureaus are required to file with the commissioner flat rates and rates on farm property.

(c) The common provisions authorizing the commissioner to require the filing of schedules, rates, forms, regulations, etc. with the common stipulation as to written surveys and completed schedules, as in Arkansas. This is supplemented by an unusual provision empowering the commissioner to require the filing of rules and regulations "except such as are in force in all other states," and on written complaints, to order such rules and regulations suspended. A power of appeal is provided; but the appeal does not suspend the order.

(d) Deviations must be filed with the commissioner.

Schedule Rating.—The usual provision requiring the inspection of risks rated on schedule making a written survey and recording the same and furnishing a copy of the schedule to the owner on request. It is stipulated that it shall be without expense to the owner.

Rate Contracts and Agreement.—

(a) The common provisions prohibiting agreements designed to control the placing of the whole or any part of the insurance, qualified by the phrase "except as contained in the policy or in the usual agreement for other insurance."

(b) The common provisions as to agreements for making, fixing and collecting rates.

Deviation.—Permitted on giving notice to the Commissioner and the Bureau and filing of the deviation showing the amended basis rate and amended charges and credits and the application to individual risks in the class or classes affected. It is required that the deviation be uniform in application to all risks in the class for which variation is made.

Discrimination.—The common anti-discrimination provision quoted in the summary, with insertion of the words "territorial classification."

Removal of Discrimination.—The common provision for administrative removal of discriminations after notice and hearing with rights of appeal to the Courts.

Rate Control.—The act provides for the annual filing of experience in general accordance with the classifications of the National Board of Fire Underwriters. The commissioner is empowered to order a revision downward in cases where a five year tabulation indicates a profit in excess of "a reasonable amount." The commissioner is required to give consideration to the conflagration hazard within and without the state. The reduction ordered may be applied to such class or classes of risks as the company or bureau may select. There is no specific requirement for approval by the commissioner. A court review is provided with simple provision for refunding of excess charges.

Exceptions.—Local mutual companies are excepted from the act, and insurance on the rolling stock of railroads, or on property in transit while in the possession of railroads or common carriers or on the property of common used in the transportation of freight, merchandise or passengers.

Application.—The act apparently applies mainly to insurance against the hazards of fire and lightning.

Hawaii

Revised Laws 1935 secs. 6831 et seq.

This is a bureau law of the type requiring every company to maintain or be a member of a Rating Bureau. No rate control is provided other than for discrimination. The bureau is required to be located in the territory and to keep there a permanent record of schedules, surveys and rates. The rate-regulatory provisions are:

Filing.—The common provision authorizing the commissioner to require the filing of schedules, rates, forms, regulations, etc.

Deviations are required to be filed.

Schedule Rating.—The act provides in the usual way for the inspection of risks rated on schedules and the making and recording of written surveys. In place, however, of the usual provision for furnishing a copy of the survey to the owner on request, the act in a separate section provides that all policies must carry a statement that on request to the agent issuing the policy the insured or his representative is entitled to a detailed statement of the rate or rates at which the policy is written, suggestions if any whereby rates charged may be reduced, and a copy of the survey of the property, if such survey is on file either in the office of the agent or the bureau.

The act contains also a provision authorizing the rating of risks on tentative survey where no survey has been made by the bureau.

Rate Contracts and Agreements.—The act contains merely the provision prohibiting agreements seeking to control the placing of all or any part of the insurance.

Deviations.—Deviations or variations may be made on notice to the commissioner and the bureau affected, together with amended and corrected schedules of the class for which the variation is filed. The variation must be uniform for all risks in the class for which it is made.

Discrimination.—The common anti-discrimination provision, as quoted in the summary.

Removal of Discrimination.—The common administrative procedure for the removal of discrimination after notice and hearing. The act provides for hearing before a salaried employee of the insurance department as well as before the commissioner, and provides that discrimination may not be removed by increasing the rate unless the commissioner finds the increase justifiable.

Rate Control.—No provisions.

Exceptions.—Apparently none.

Application.—The act apparently applies to fire insurance only.

Idaho

Code, Ann., 1934 secs. 40-1601 et seq.

A bureau law of the permissive type, dating from 1923. The form differs considerably from the regular models, though the substance is not so very dissimilar save in a few respects. Any resident company or resident person may maintain a rating bureau. The bureau must maintain an office in the state. A bureau is defined as being public service in character, and to be conducted on a non-profit basis, except as to reasonable compensation for service rendered. The bureaus must keep records of work performed in rating and inspection work, showing all receipts and disbursements, and must be open during the regular office hours the inspection and examination of the director of insurance and his officers. The law contains an elaborate provision for stamping policies, and an anti-discrimination provision, but no other type of rate control. Rate-regulatory provisions are:

Filing.—

(a) A provision that all bureaus must, before publishing or furnishing any rates, file their rating schedules with the director of insurance.

(b) A provision that every insurance company that has not given notice of its acceptance of the rates of a bureau must make a similar filing. But companies are forbidden to file the rates of a bureau less a certain percentage.

(c) A provision that every company shall file its short rate table for cancellation of policies.

(d) Variations from bureau rates must be filed.

Schedule Rating.—Substantially the common provision for inspection of risks rated on schedule, making and recording a written survey and furnishing a copy to the owner on request.

Stamping Provisions.—Rating bureaus are required to appoint a "chief examiner" not engaged in any way in making rates for the bureau. Applications and daily reports are submitted to him, and it is his duty to examine them and report to the director of insurance all discriminations, deviations and violations of the law. He endorses his approval on the application or daily report if correct, or notifies the company or agent of errors, and in case errors are not corrected, reports the same to the director. A somewhat parallel provision is made with regard to the keeping of records by companies who are not members of a rating bureau and for the report by them to the director if their agents refuse to correct errors in their policies.

Rate Compacts and Agreements.—The Act contains in substance the prohibition of agreements looking towards control of the placing of all or any part of the insurance, with an added prohibition of agreements as to the time of any rates shall remain in effect.

Deviations.—The law prohibits deviations from rates on file or from the short rate table on file, but permits bureau members to make variations from bureau rates on 30 days' notice to the director and the bureau and by filing the variation which must be uniform throughout the territorial classification. Every insurer is expressly permitted to make variations from the bureau rate.

Discrimination.—The anti-discrimination provision differs from the regular form quoted in the summary merely in using the term "physical, climatic or other hazard," instead of "hazard."

Removal of Discriminations.—Substantially, the common administrative provision for removal of discriminations. Discriminations may not be removed by increasing rates unless the director finds and states in his order that the increase is justified. The act provides for an appeal to the District Court, and from an appeal from the District Court to the Supreme Court.

Rate Control.—None.

Exceptions.—Exceptions is made of county mutual companies, unless they apply for bureau membership and agree to become subject to the chapter.

Application.—Apparently to insurance against fire and lightning.

Illinois

Smith-Hurd Illinois Ann. Sts. c. 73 secs. 1036 et seq.

A bureau law of the type requiring every company to maintain or be a member of a rating bureau. The law requires companies to obtain their rates from rating organizations authorized to operate in the state, of which they shall be members or subscribers. A bureau is required to procure a certificate of authority, paying a fee of $50, and must maintain an office in the state and keep complete records of its proceedings there.

Filing.—

(a) Bureaus are required at the time of applying for a certificate to file their schedules or methods to be used for the determination and promulgation of rates, and all rules and regulations pertaining to the price of fire insurance.

(b) The director is empowered to require filing of schedules, forms, rules, regulations and amendments thereto.

(c) Deviations are required to be filed.

Schedule Rating.—Rating organizations are required on written request to furnish to a person on whose property or risk a rate has been made full information as to rating, and if such property is rated on schedule, with a copy of the "make-up" of such rating.

Rate Compacts and Agreements.—

(a) Prohibition of agreements designed to require the whole or any part of insurance to be placed in a particular way or at a particular rate.

(b) Prohibition of rules and regulations prohibiting the issues of policies providing for a contingent liability or for participation company earnings.

Deviations.—Deviations from bureau rates are generally permitted on condition that the deviation is filed with the rating organization and with the director, provided the expense of the company warrants such deviation, provided the deviation is a uniform percentage deviation to apply to all insurance written by the company in the state, and provided the deviation is approved by the director.

A deviation if approved remains in effect for one year and may be renewed annually. The law permits rates higher than bureau rates to be charged with the knowledge and consent of the assured. The law permits any company to issue a current policy providing for annual payment at a reduced current rate.

Discrimination

Removal of Discrimination

Rate Control.—These subjects are covered by a simple prohibition against determining or promulgating a rate which is "unjust, unreasonable, discriminatory or preferential." No statutory machinery is set up for taking action on rates; but probably none is needed, the rating organization doing business by virtue of a certificate of authority issued by the director. Provision is made that special schedules, methods, rules and regulations may be used for rating single risks if a special inspection service is maintained by the rating organization.

Exceptions.—The act makes no company exceptions but excepts the following types of business:

(a) Marine, inland marine and transportation insurance except householder's personal property, floater risks.

(b) Motor vehicle insurance.

(c) Insurance covering property of interstate common carriers.

The exceptions from the rate-regulatory clause of risks written with special inspection service has been noted.

Application.—Generally, to fire insurance only.

Litigation.—None.

Indiana

Burns' Indiana Sts. 1933, sec. 39-4310

A bureau law of the type requiring every insurer to maintain or be a member of a rating bureau. It includes not only fire insurance but a number of collateral lines, and also automobile, fire and theft.

The concluding section applies to automobile casualty lines. The law as it stands is the modification of an older law, formerly Section 39-2201 *et seq.* The law requires rating bureaus to maintain a rating office in the state, except rating bureaus maintained only by mutual companies which may maintain an office anywhere in the United States. Bureaus must within 60 days make certain filings with the insurance department, but there seems no definite provision for a certificate of authority, except the reference thereto in the penalty provision.

Rate Filings.—

(a) A bureau must file within 60 days after its establishment, its schedules used in making rates, the classification of each town in the state, and the basis or table rate used therein, and all regulations and rules used.

(b) Changes in schedules, rules, regulations, contracts or agreements must be submitted to the Department in writing. After 20 days, the Department holds a public hearing, and makes such order as it may see fit. A court appeal is provided.

(c) The Department has authority to require filing of schedules, written reports of surveys, rates, forms, rules and regulations. Surveys and completed schedules may be required only where there is a written complaint pending before the Department.

(d) Deviations must be filed with the Department.

(e) There is a special provision as to schedules, etc. on the automobile casualty lines.

Schedule Rating.—The common provision for inspection of risks rated on schedules, making written surveys and reporting the same, and furnishing a copy of the survey with the owner of the risk on request. The section also provides that flat rates used be recorded in the bureau office. The survey must be furnishd the owner without cost.

Rate Compacts and Agreements.—The act contains the common provisions noted in the summary as to agreeements for the making, fixing and collecting of rates, but not the common prohibition against contracts as to controlling the placing of all or any part of the insurance.

Deviations.—Deviations must be filed with the bureau and with the Department, 15 days before taking effect. The deviation must be uniform in application to all risks for which the variation is made. The filing must show the amended basis rates and the amended charges and credits. The act provides that every company is permitted to make uniform percentage reductions in the specific rates of any bureau which is a member, and bureaus are permitted to make rules and regulations forbidding such reductions. There is a special deviation provision for the casualty automobile lines.

Discrimination.—The common prohibition of discriminations including the words "territorial classifications."

Removal of Discrimination.—The common administrative method for removng discriminations after notice and hearing, with court appeal from the order. The act provides for the refunding of overcharges.

Rate Control.—Changes in schedules, rules, regulations, contracts or agreements must be filed in writing with the department, and after a public hearing, not less than 20 days after the filing, the department may make findings and orders with respect thereto, subject to a right of appeal.

Rate revisions are based on tabulations of premiums, receipts and losses, in accordance with the classification of the National Board of Fire Underwriters, "as approved by the insurance commissioners' convention" are provided for. The period tabulated is five years. Provision is made for consideration of the conflagration hazard, within or without the state. The department has authority to order reductions upon any class or classes of risks which show an underwriting profit in excess of reasonable amount; and is required to increase the rates in any class or classes or risks that fail to show a reasonable underwriting profit. Notice and a hearing are provided for; all orders are subject to court review.

Exceptions.—The act does not apply to farmers' mutual insurance companies organized under the laws of the state. The exception of bureaus organized by mutual companies from the law requiring the location of an office in this state has been noted.

The act does not apply to rolling stock of railroad companies, property in transit while in possession of common carriers, or to the property of common carriers used or employed in carrying freight, passengers, etc.

Application.—Insurance against fire, lightning, windstorm, sprinkler leakage, use and occupancy, and insurance upon automobiles and other vehicles against loss or damage by fire and theft. There is a concluding section applying to insurance on automobiles against theft, collision, personal injuries and property damage.

Discussion of this latter section is deferred to Section III.

Iowa

Code 1939 sec. 8961

Iowa is an anti-compact state, giving its chief attention to policy forms rather than rates. In connection with the regulation of cancellation, the commissioner is required to prepare and publish a table of short rates, and companies are forbidden to make or charge a greater sum than those fixed by the table. Short rates table must be printed or attached to the policy. The law applies to all companies other than life.

Kansas

Revised Sts. 1935 secs. 40-911 et seq.

This law dating from 1909, is the pioneer rate-regulatory law. It is not a bureau law, the regulations being of individual companies. Rating bureaus are recognized in a way in section 922 which authorizes the commissioner to investigate all fire insurance rates and visit or examine all rating bureaus. If a bureau refuses to permit examination, the commissioner is empowered to refuse to permit the schedules of rates made by such bureau to be filed by any fire insurance company in the state.

Rate Filings.—

(a) Every life insurance company is required to file with the commissioner of insurance "general basis schedules" showing the rates or all classes of risks insurable by such companies in the state, and all charges, credits, terms, privileges and conditions which affect the rate, or the value of the insurance to the assured.

(b) Changes in rates which have been filed must be made on 10 days' notice to the commissioner, who may however allow a filing on short notice either by general or special order.

(c) When a company writes insurance for which no rate has been filed, it must file a schedule thereof within thirty days, conforming to the general requirement for filing.

Schedule Rating.—No specific provision.

Rate Compacts and Agreements.—No special provisions in the rating law; but Kansas has an anti-compact law.

Deviations.—Companies are forbidden to write insurance unless the schedule of rates has been filed as required, and are forbidden to write insurance at any different rates, or to extend to the insured any special privilege or inducement or concession other than is contained in the schedule.

Discrimination.—Companies are forbidden to "collect or receive from any person or persons a greater or less or different compensation for the insurance of any property located in the state that it charges, demands, collects or receives from any other person or persons for like insurance on risks of a like kind and hazard under similar circumstances conditions."

Removal of Discrimination.—No administrative provisions.

Rate Control.—The commissioner is authorized, in case he determines a rate is excessive or unreasonably high, or inadequate to the safety or soundness of the company granting the same, to direct such company to publish and file a higher or lower rate, commensurate with the character of the risks, and in any case, reasonable. Provision is made for notice and hearing, and for an appeal to the courts. The courts are authorized to permit any company appealing to write insurance at rates that prevailed, prior to the order, on condition that the excess above the rates complained of shall be deposited with the commissioner, to be paid over by him at the conclusion of the appeal to the party entitled thereto. The court may authorize a surety bond in lieu of a deposit.

Exceptions.—None.

Application.—The act applies to fire insurance companies and to all risks insurable by such fire insurance companies. Presumably this would include all collateral lines, so far as Section 40-911 is concerned: The application of other sections is more questionable, save as to windstorm, tornado and hail, which are specifically included by an added section.

Litigation.—The Kansas Act has been the subject of two rate cases of importance and several minor ones concerning discrimination.

Aetna Ins. Co. v. *Lewis*, 142 Pac. 954 (1914)
German Alliance Ins. Co. v. *Kansas*, 238 U. S. 389
Aetna Ins. Co. v. *Travis*, 257 Pac. 337, 259 Pac. 1068 (1926, 1927)
Graff v. *National Liberty Ins. Co.*, 193 Pac. 356, *Bagley Co.* v. *Merrick*, 253 Pac. 562, *Van Arsdale-Osborne Brokerage Co.* v. *Stull*, 293 Pac. 523

The first three cases are discussed in the text of the paper. The other cases all involve the question, is an insurance contract, written at a discriminatory rate void. None of them decided the question squarely. The two latter cases are chiefly interesting as indicating that the Kansas rating law applies to hail, windstorm and tornado insurance, though possibly not as to all its provisions.

Kentucky

Carroll's Kentucky Sts. 1936, sec. 762b 25 et seq.

A bureau law, requiring every company to maintain or be a member of a rating bureau. Bureaus are required to maintain an office within the United States. The act dates from 1920.

Filing Provisions.—

(a) The usual provision authorizing the auditor to require the filing of schedules, rates, forms, rules and regulations, with the common exception that surveys and completed schedules shall be filed only if necessary to determine a question of discrimination.

(b) The usual requirement for filing deviations.

Schedule Rating.—The usual provision requiring the inspection of risks specifically rated on schedule, making and recording of a written survey and delivery of a copy of the survey to the owner on his request. There is added the provision that on the making of a survey the bureau shall promptly present to the owner a statement of the rate and the removable defects found with suggestions for improvement and the removal of such defects.

Rate Compacts and Agreements.—The common provision prohibiting agreements to control the placing of insurance is tacked on to the deviation section in a fashion which suggests an error. The common provisions as to contracts for the making, fixing or collecting of a rate appear in the usual form.

Deviations.—The common provision that deviations must be filed with the bureau and with the auditor. Deviations must be uniform in application to all risks in the class for which variation is made. As indicated above this section as it stands is confused by having an anti-compact provision most illogically tacked on to it.

Discrimination.—The common prohibition of discrimination as quoted in the summary, coupled with an unusual provision which prohibits the use of any method of computing "unearned premium" on policies to be cancelled covering farm property other than that used on other classes of property of like character located in cities and towns.

Removal of Discrimination.—The common provision for administrative removal of discriminations after notice and hearing, but containing no specific provisions for a court appeal.

Rate Control.—The auditor is empowered to investigate the necessity for reduction of rates, and if the result of the business of stock fire insurance companies in the commonwealth for five years preceding the investigation discloses the profit in excess of a reasonable amount, is empowered to order a reduction; but not a reduction which will prevent a reasonable aggregate profit. Reductions ordered may be applied to classes declared by companies and rating bureaus, subject to the approval of the auditor. The auditor is required to give proper consideration to losses and liabilities, both within and without the commonwealth.

Exceptions.—No general exceptions.

Application.—To fire insurance only.

Litigation.—*Reed* v. *General Ins. Co. of America,* 96 S.W. 2nd. 259. This involves the question of discrimination as between a policy for one year renewable annually over a period of five years, and a five year policy payable in installment notes.

Louisiana

Dart's Louisiana General Sts., 1939, secs. 4221 et seq. See also Act 47, Acts of 1940.

This law, dated from 1926, is a bureau law of the third type, that is, a law establishing a single bureau of which all stock insurance companies are required to be members. Special supervisory authority is erected in the form of an insurance commission of three members whose salaries and expenses are met out of a fund collected from the company bureau members, and placed at the disposal of the commission. The act provides for the organization of the bureau, which is of course a strictly local affair with main offices in New Orleans, branch offices located as is advisable. The board of directors are required to be residents of Louisiana. The state fire marshal is by the terms by the act a member of the bureau, and a member of the board of directors and the executive committee. The insurance commission acts in a supervisory capacity, but is entitled to notice of all meetings, and privileged to attend the same. The insurance commission has certain jurisdiction over the licenses of fire insurance companies and their agents, being authorized to suspend and revoke the same. Certain of the loss provisions contemplates supervision over commissions paid to agents, and over their dealings with respect to rating matters. An anti-rebating provision is written into the law.

The Bureau replaces a fire prevention bureau organized under Act No. 189 of 1904.

Rating provisions are as follows:

Filing Provisions.—

(a) Carriers are required annually, in connection with anti-discrimination provisions, to file with the commission "A schedule of rates as well as all other compensation whatsoever which the company will pay to its respective local agents within the state for the ensuing calendar year." There follows a provision that rates of commission and all other compensation shall be uniform throughout the state.

(b) Carriers are required to file "within a reasonable time after the organization of the bureau" a schedule of rates of premium for insurance of the kinds covered by the act.

(c) The bureau must furnish the commission with a copy of its proceedings, must answer inquiries and may be required to file forms and regulations. No rates, rules or regulations may be promulgated until approved by the commission.

Schedule Rating.—The usual provision for inspection of risks rated on schedule, making and recording written surveys. To this is added a provision that the survey shall give in detail the defects either of construction or occupancy or both. The rate must be stated, together with the relative measure which each defect bears to the fire hazard as a whole, and to the basic cost of the same, and the consequence proportional value of improvement, so that the insured may be informed as to his rating, and as to how it may be reduced. Copies of surveys are to be furnished to the owner or any person in interest on request and without expense.

Rate Compacts and Agreements.—The common provision prohibiting agreements designed to control a placing of the whole or any part of an insurance premium.

Deviation.—Companies are generally required to write insurance at the rates fixed by the bureau, with the exception of fire, windstorm and hail insurance on public property, as to which the rates are advisory only. Deviation from bureau rates may be made on written notice to the commission and the bureau, and the filing of a special provision for uniform reduction or deviation by schedule from the rates on all risks of any particular class or classes, uniform on all such classes throughout the state. Approval by the insurance commission is required.

Discrimination.—

(a) In the section setting forth the powers of the bureau it is provided that rates shall be "undiscriminating" and a prohibition is added in the common form.

(b) Stock insurance carriers and their agents are prohibited from making "any distinction or discrimination" in favor of any person insured, and from rebating.

(c) In the same section it is provided that commissions to agents and other compensation shall be uniform and equal as to all local agents of a particular company throughout the state. This, and the previous provision are implemented by requirements for sworn returns; for investigation and examination and for penalties for violation or for refusal to disclose records, etc.

(d) The provision for removal of discrimination contains what is probably intended to be repetition of the common anti-discrimination provision, but is, as stated in the law, somewhat different.

Removal of Discrimination.—A somewhat abbreviated form of the usual provision for administrative determination, after notice and hearing, that discrimination exists, and ordering the discriminatory rate removed and another substituted which is not discriminatory.

Rate Control.—

(a) In the provision setting forth the powers of the bureau it is provided that rates shall be "equitable and undiscriminating," and that no rates, rules and regulations fixed by the bureau shall be promulgated without the approval of the commission.

(b) Stock fire insurance companies are required to sign an agreement to abide by and comply with the rates and rules and regulations promulgated by the bureau and approved by the commission; subject however to the right to ask for a deviation.

(c) Companies are forbidden under penalty to do business except in accordance with bureau rules, regulations and rates, except in case of approved deviations, and except as to insurances on public property.

(d) Rates complained of as "excessive" may be proceeded upon as is provided for the removal of discrimination.

(e) Provision is made for annual return by customary classification of premiums, losses and expenses, the latter figured on a percentage basis of allocation. If on a five year compilation the commission finds that the rates charged are "excessive and unreasonable," in that the five year results show an underwriting profit in excess of a reasonable amount, the commission shall promulgate rates calculated to yield the companies a five per cent profit on business transacted in the state.

The commission is required to give consideration to the conflagration hazard, within and without the state and make reasonable allowance therefor. Rate changes are to be applied only to policies thereafter written. They are to be applied to classes of risks which have proved most profitable, designated in writing by the bureau and approved by the commission.

(f) The provision requiring all stocks carriers to file their rates after the organization of the bureau contains a provision that rates shall be in all cases a fixed percentage of the amount insured by the policy; that premiums shall be charged and collected in accordance with the schedule of rates and regulations on file with the commission as fixed from time to time thereafter: and that, except as otherwise provided, premiums shall be uniform for all licensed companies for all risks rated under the new schedules and classifications.

Approval by the commission is required before any schedule or rates or changes and amendments therein are applied. Approval may be in whole or in part, it being stipulated that the rates shall be "fair and just to the people of the state, and compensatory to the insurance companies doing business in this state, and in line with the rates of insurance charged by the said companies in other states, taking into consideration all factors of the cost of insurance." Appeals from decisions of the commission by the attorney general are provided.

The above provisions for control are sufficiently numerous, to say the least, but somewhat confusing and somewhat indifferently tied together.

Exceptions.—The act is prolific in exceptions.

(a) Mutuals and reciprocal exchanges are excepted but may become subscribers to the bureau, and when so subscribing are required to use bureau rates: though it is provided that their plans for participating dividends shall not be restricted. No mutual or reciprocal may subscribe unless all mutuals or reciprocals under the same management also subscribe.

The section makes specific reference to five sections of the act as applying to mutuals and reciprocals who subscribe; presumably the rest of the sections do not apply. One of these sections is the one setting forth the general powers of the bureau; one the section for procedure on rates claimed to be excessive or discriminatory; one the section relating to deviations; the other two relating to expenses.

(b) Classes of business excepted generally are, rolling stock of railroad corporations; property in transit while in possession of railroads or common carriers; property of common carriers used in business of transporting freight, merchandise or passengers; insurance on marine or transportation risks or hazards other than automobile insurance.

(c) It is provided that insurance rates for fire, windstorm and hail insurance on public property shall not be compulsory, but advisory only.

Application.—The act applies to insurance against fire, windstorm, hail and automobile fire and theft. Many of the sections are made specifically applicable to stock fire insurance companies, and the anti-discrimination provisions make such specific references tŏ fire that it is not certain how far they apply to the other lines.

Litigation.—See

Hanover Fire Ins. Co. v. *Southern Amusement Co., Inc.,* 150 So. 92
New Orleans Real Estate Board v. *Ins. Comm.,* 150 So. 286
Jung Hotel, Inc. v. *Ins. Comm.,* 154 So. 448

Maryland

Flack's Ann. Code, 1939, Art. 48 A, sec. 45

A long and detailed anti-discrimination and anti-rebating law applicable specifically to fire and miscellaneous insurance. The anti-discrimination provision reads: "no corporation . . . . . shall, with intent to discriminate, make or permit any distinction in rates applied or premiums charged or dividends or other benefits returned, or in the terms or conditions of insurance whereby a person whose property is insured in a particular company is favored as compared to another whose property is insured in the same company, and is of the same character and condition, and similarly situated as to exposure, ownership, control, portection or occupancy and risk at his." This statute is implemented by provisions for investigation, production of documents, and by a penal provision.

Massachusetts

Annotated Laws, c. 175 sec. 104 (see also c. 26 sec. 8)

A very brief statutory provision providing for appeals by any person aggrieved by any rating of a fire insurance company or board making premium rates for fire insurance to a board consisting of the insurance commissioner or his deputy and two appointed members, styled the board of appeal on fire insurance rates. The complaint must state in detail the grounds on which the complaint is founded. The board then notifies all persons in interest and sets a time and place for hearing the complaint. After hearing, the board makes a finding as to whether the established rate is "excessive, unfair or discriminatory" and makes such recommendation as it deems advisable. Finding and recommendation are matters of public record. There is no power to order rates modified.

Michigan

Michigan Sts. Ann. c. 242, secs. 24-49 et seq.

A bureau law of the permissive type. The act provides that a company may maintain its own bureau, or that companies may maintain rating bureaus "subject to the anti-monopoly law of the state," may write insurance independent of bureau ratings, subject to the provision for deviations. The law establishes a special rating division in the insurance department and charges the commissioner with the duty of investigating the subject of fire insurance rates, including methods of estimating fire hazards, fire protection, prevention devices, cost of operation, the expense of insurers, and rating systems. Bureaus must obtain licenses, and a majority of the management or directorate must be residents of the state. License fees are substantial, $250 annually for the head bureau, $50 for each branch office. Officers and employees engaged in the rating or inspection of risks must also be licensed, the fee being $25 annually. Offices must be located within the state. Rating provisions are:

Filing Provisions.—

(a) Bureaus are required to file with the commissioner at time of applying for license and from time to time thereafter, copies of basic schedules used in rate making and all rules and practices, including amendments, rules and practices, interpretations and instructions to agents, inspectors and employees with relation thereto. Filings are not to be effective until approved, and are not to be used if disapproved.

(b) The commissioner may request the bureau to furnish him with a copy of a completed survey of a risk rated on schedule.

(c) The commissioner may require information as to organization, maintenance or operation of the bureau and must require the filing of schedules, rates, forms, rules and regulations.

Schedule Rating.—The usual provision for the inspection of risks specifically rated on schedules, for the making and recording of written surveys and furnishing a copy to the owner on request. This is supplemented:

(a) by a requirement that a copy be furnished the commissioner on request

(b) that the schedule shall show the name or names of the rater or raters who inspected the risk and computed the rates.

Rate Compacts and Agreements.—

(a) Agreements in regard to the collecting of any rate for fire insurance in violation of this act or any other law of the state are prohibited.

(b) The usual provision forbidding agreements looking to the control of the placing of the whole or any part of any insurance.

The anti-compact law of Michigan doubtless has application, save as modified by the act.

Deviations.—Deviations by any company from the schedule of rates must be uniform in application to all risks in the class for which deviation is made, and no deviation shall be effective unless notice and the reason therefor shall be filed with the commissioner and has been approved by him.

Discrimination.—

(a) Companies or insurers are forbidden to charge rates for fire insurance which discriminate unfairly between risks in the application of like charges or credits, or which discriminate unfairly between risks of essentially the same hazards, wherever located, regard being had to the relative degree of protection against fire, or which discriminate unfairly against or in favor of classes, or communities as a whole. This is implemented by a provision for revocation of the license of a rating bureau that fixes, finds or advises any insurance company in regard to a rate discriminatory within the meaning of the chapter.

(b) In a succeeding section, a rate which is excessive or inadequate is to be deemed *prima facie* discriminatory.

Removal of Discrimination.—The act sets up a commission consisting of the attorney general, the commissioner of banking and the commissioner of insurance to act on written complaints or on information of the commissioner that discrimination in rates exists. After notice and hearing the commission may find the rate is discriminatory and order it removed; but discrimination may not be removed by increasing rates unless the increase is found by the commission to be justifiable. The court appeal provision provides that the order of the commission is not suspended unless bond is given for the repayment of overcharges to policyholders. In addition to this bond the companies securing a stay must file a statement with the court giving the name, address and policy number of every policyholder in the class affected by the order, and deposit as the court may order a sufficient sum of money to make restitution for overcharges.

Rate Control.—

(a) The commissioner has authority to determine the adequacy or reasonableness of any rate charged by any fire insurance company, either on complaint or on his own motion, and may suspend any rate found to be excessive and order substituted a just and reasonable rate therefor, based on "relative hazards, local conditions and all other reasonable elements entering into fire insurance ratings and risks." Provision is made for hearing and court review as in case of proceedings for removal of discriminations.

(b) Prohibition is made of the charging of rates that are "excessive," implemented by a provision for the revocation of the license of a bureau that fixes, finds, or advises any insurance company to charge any rate which is excessive.

(c) Questions of adequacy and reasonableness may apparently be gone into in proceedings for the removal of discrimination.

(d) The rate must not include a surcharge or other charge in addition to the normal rate applicable to the risk.

Exceptions.—The act does not apply to fire insurance companies not charging an advance premium, nor to certain local mutual companies.

Application.—Apparently to fire insurance only.

Litigation.—

Otsego Township School District v. *American Ins. Co.*, 262 Mich. 385
Opinions, Atty. Gen., 1919, P. 75 1921,—1922 p. 391

Minnesota

Mason's Minnesota Sts. 1927, secs. 3604 et seq. 1940 Supp. secs. 3608, 3609.

A bureau law of the second type, requiring every company to maintain or be a member of a rating bureau. Bureaus are required to maintain an office within the United States.

Filing Provisions.—

(a) The commission may require the filing of schedules, rates, forms, rules, regulations, etc.

(b) Deviations from bureau rates are required to be filed.

(c) Filing of rating agreements is required.

Schedule Rating.—Usual provision for inspection of risks specifically rated on schedules making and recording a written survey thereof and furnishing a copy to the owner on request.

Rating Compacts and Agreements.—The act contains the common provision with regard to agreements for the making, fixing or collecting of any rates, except in compliance with the act. The act however provides positively that the agreement must be in writing and prior to its taking effect must be approved by the commissioner and a copy of the agreement and the order of approval filed with the commissioner and any rating bureau of which the company is a member.

Deviations.—Deviations must be filed with the commissioner and with the bureau of which the company is a member together with a written statement of the variation. The variation must be uniform and applicable to all risks of essentially the same hazard in the class for which variation is made. Variations below bureau rates or below rates fixed by the commissioner may not be increased for the term of a year without the approval of the commissioner.

A declaration by an insurer of its intention to write insurance at a uniform variation of a certain percent form the bureau rates is regarded as sufficient compliance with the requirements of the section.

Discrimination.—The usual form of prohibition of discrimination.

Removal of Discrimination.—A very simply phrased administrative procedure for holding hearings on rates deemed discriminatory, with power to order the discrimination removed and a non-discriminatory rate established as the bureau rate. A court appeal is provided with simple provision for refunding overcharges.

Rate Control.—

(a) The proceeding for removal of discrimination is available for the correction of rates that are "unjust."

(b) It is provided that no increase in fire insurance rates affecting the general rates or rating classification in the entire state, or in an entire zone, city, village, town, county or other political subdivisions shall go into effect until approved by the commissioner after notice and hearing. The commissioner may also in his discretion hold a hearing on any decrease of rates. Provision is made for appeals as in case of orders for the removal of discriminations.

Exceptions.—Exception is made of county and township mutual companies.

Application.—Apparently to fire insurance only.

Mississippi

Code 1930 sec. 5302 et seq. am., 1935, Extraordinary Session, c. 34 (Supp. 1938, P. 1175).

A bureau law, dating from 1924, creating a single bureau of which all companies are required to be members. The act sets up a board known as the insurance commission, consisting as amended of the insurance commissioner ex-officio as chairman and three appointed members. The board is charged generally with the supervision of the bureau. The act makes provision for the organization of the bureau, to be composed of persons resident in the state, skilled in fire rating, etc. Some latitude is allowed as to the form of organization. The bureau is required to maintain an office in the City of Jackson. All stock fire insurance companies are required to be members of the bureau. The act has some resemblance to the Louisiana law.

Filing of Rates.—

(a) Companies are required after the organization of the bureau and from time to time thereafter to file with the commission a schedule of rates of premium. Before applying any schedule or amendment, the same must be approved.

(b) The bureau has power to advise and submit to the commission for approval changes in schedules filed.

(c) The bureau is required to furnish the commission with copies of its proceedings for organization, and to answer inquiries to as to organization, maintain and operation. The commission may require the filing of forms, regulations, etc.

(d) Deviations must be filed with commission.

(e) Copies of complete surveys are to be furnished the commission on request.

Schedule Rating.—The usual provision for inspection of risks rated on schedule, making and recording a written survey, and furnishing a copy to the owner or other person in interest on request.

Rating Compacts and Agreements.—The common prohibition against agreements to control the placing of the whole or any part of any insurance.

Deviations.—A company may on notice in writing to the insurance commission file a special provision for uniform deviation from the rates upon a particular class or classes: but the deviation must be uniform on all classes throughout the state, and if it provides for an increase in rates, must be approved by the commission.

Discrimination.—The bureau is forbidden to fix rates which discriminate unfairly in the same territorial classification between risks in the application of like charges and credits or between risks of essentially the same hazards and having the same degree of protection against the fire. There is also an anti-rebating provision prohibiting generally the making of distinctions or discriminations.

Removal of Discrimination.—The common provision for administrative procedure on notice and hearing to remove an unfair discrimination and order a lawful rate substituted. A court appeal is provided.

Rate Control.—

(a) In connection with the provisions requiring companies to file their schedules and rates, it is provided that they must be approved by the commission before taking effect. An annual approval at the time of filing the annual report is provided.

(b) It is provided that rates as filed are the legal rates and it is unlawful to use others except as provided in case of deviations.

(c) Provision is made for annual reporting of underwriting experience and the commission is directed to make compilation showing experience for five years. If the compilation shows an underwriting profit in excess of five per cent the commission is directed to order rates reduced so as to yield a profit of five percent. Consideration is to be given the conflagration hazard, within and without the state, and proper allowance made therefor.

Rate reductions are operative only on policies written subsequent to the order, and are to be applied to such class or classes of risks as may prove most profitable, to be designated by the bureau.

(d) The commissioner is directed to make annual inquiry as to rates of commission and to advise the bureau as to the majority opinion as to the amount or rate of commission to be paid local agents. The amount or rate of commission is to be kept at all times uniform as to classes or risks throughout the state "in order that the profits of the stock fire companies doing business in this state may be accurately ascertained."

Provisions are made for appeal to the courts.

Exceptions.—

(a) The act is not to apply to mutual companies or reciprocal exchanges unless they elect to become subscribers to the bureau. The bureau must not discriminate against them because of their plans for operation. The bureau rates become the lawful rates, but without prejudice to their participation plans. They have the same rights to file deviations as other carriers. A mutual or reciprocal may not become a subscriber unless all similar companies under the same management become subscribers. The sections of the act relating to expenses of the bureau, the provisions relative to discrimination and the removal thereof, appeal provisions, penal provisions and provisions against rebating apply.

(b) The act does not apply to insurance on rolling stock of railroad companies; property in transit while in possession of railroads or common carriers; property of carriers employed in transportation of freight, merchandise or passengers; marine or transportation risks other than automobile insurance.

Application.—Apparently to fire insurance only.

Missouri

Statutes, Ann., secs. 5860 et seq.

A bureau law of the permissive type, dating from 1919, and the prime storm-center of litigation involving rate regulation. It succeeded a law passed in 1915. The law requires every company to maintain a "public rating record" including general basis schedules embodying basis rates, charges, terms, conditions, permits and credits, forms and endorsements, and changes of rate to be made on account of forms and endorsements." This is designed for public inspection and information. A company is permitted to use the public rating record of an actuarial bureau provided such record shows the true and correct rates charged by such company. The drafter of the law evidently considered it possible that company might be a bureau member and not adhere to its rates. The publicity provisions make the maintenance of a local office necessary. There is a provision for licensing inspectors; but the licensing fee is considerably lower than in Michigan, merely $5.00.

Filing Requirements.—

(a) Copies of all public rating records, whether kept by companies or bureaus must be filed with the superintendent and notice of all changes therein must be immediately given. Changes in rate upward must be approved by the superintendent.

(b) The superintendent may address inquiries as to organization, maintenance and operation of any bureau or insurer and may require the filing of schedules, forms, rules, regulations, agreements, etc.

Schedule Rating.—

(a) Companies are required to furnish the policyholders on the issuance of a policy with a written or printed analysis of the rate or premium charged, showing the items of charge and credit determining the rate.

(b) The common provision is made for inspection of each risk specifically rated, and making and recording a written survey thereof. To this are added:

(1) a requirement that each risk rated shall be given a uniform classification number

(2) a requirement that inspections be made by competent inspectors licensed by the department

(3) a stipulation that when directions or information as to changes or improvements in rates are made by an inspector and the insured makes the changes and improvements, the company or bureau represented by the inspector is obligated to give proper credits for the improvements made.

Rate Compacts and Agreements.—

(a) A prohibition of agreements to continue to use the rating record of any actuarial bureau, to refrain from maintaining any individual rating record or to maintain the rates fixed by such actuarial bureau.

(b) A prohibition of making and fixing rates or schedules of rates on condition that all or any part of the insurance on a risk shall be placed with subscribers of a particular actuarial bureau, or written or placed with any particular company, insurer, agent or group thereof.

(c) Companies are prohibited from paying different percentages of commissions to any agent or agents on condition that they represent or do not represent companies belonging to same or different associations.

Deviations.—There is no formal deviation provision: but a company is prohibited from receiving any premium different from the rate of premium indicated by its public rating record. If it does not adhere to bureau rates, it must apparently maintain its own public rating record. Any changes in its rates must be placed in the public rating record and filed with the Superintendent, and if they involve an increase in rates must be approved by him.

Discrimination.—

(a) The act contains the common anti-discrimination provision.

(b) There is an anti-rebating section forbidding companies or agents by special rates, drawbacks, rebates, commissions, devices or subterfuges to charge or collect any compensation or premium different from that indicated by its public rating record. Companies are forbidden to discriminate unfairly between risks of essentially the same hazard and substantially the same degree of protection. This differs from the concluding clause of the common provision by omitting the words "against fire," and is probably necessary because the law applies to insurance against hazards other than fire.

(c) The provision against discrimination in agents' commissions is noted above.

Removal of Discrimination.—The common administrative provision for ordering discriminations removed after notice and hearing, with the provision that discriminations may not be removed by increasing rates unless it shall appear to the superintendent that such increase is justifiable and an order of approval filed. There is a general provision for court review, applicable to all orders of the superintendent.

Rate Control.—

(a) Changes in the public rating record must be approved if they involve an increase in rates.

(b) The superintendent is empowered to order companies to compile and file with the superintendent or bureau statistics of net amount of insurance in force and written, net premiums received and net losses paid for each class within the state. When required, the bureau must compile and file the total of the reports of their members. Uniform schedules and classifications for such reports are required, so far as practicable.

Stock companies must annually report to the superintendent the total amount of premiums, losses and expenses for or on account of business in the state for the preceding year. They are required to report expenses in the following detail:

(1) commissions paid to agents; (2) salaries paid; (3) taxes paid; (4) other underwriting disbursements.

There is a further provision for a five year report to be made immediately after the effective date of the act.

The superintendent or on complaint or on his own motion may investigate the necessity for a reduction of rates. If the aggregate profits of stock companies for the preceding five year period are in excess of what is reasonable, he is required to order such reduction as will in his opinion produce a reasonable profit. The reductions are to be applied by the companies subject to the superintendent's approval. In the event that the companies fail within 30 days to submit a classification or classifications meeting his approval, he must apply the reduction in such a way as appears to him just and equitable.

The superintendent is required to give consideration

(1) To the conflagration liability, within or without the state.

(2) To acquisition cost, administration expense, and all earnings, including investment profits.

(3) To the degree of economical administration of underwriting, and safety and reasonableness of investment policies.

A court review is provided. In the review, all issues are tried *de novo* and the burden of proof as to unreasonableness or injustice of any order rests upon the complainant. An order requiring a reduction of rates is suspended during review, but companies must deposit an amount equal to the difference between rates fixed by the superintendent's order and those in effect prior thereto, to await the result of the review, and then to be returned to policyholders or to companies as the case may be. Funds are to be deposited with the superintendent and by him in banks, and there are provisions as to the interest to be paid by banks on such deposits.

(c) There is a special provision calling for notice and the filing of the schedule of any increase in rates with the superintendent. Unless approved by him, the increase is deemed unreasonable and unjustifiable, and is not to be used until approved.

Exceptions.—County mutuals, farm mutuals and town mutuals, organized under chapter 37, articles 14, 15 and 16 of the Revised Statutes are excepted. A number of the sections of the act specifically apply to stock companies, and presumably to no other kinds of carriers.

Application.—The act applies to insurance against risks of loss by fire, lightning, hail and windstorm.

Litigation.—(See text of paper, Pp. 363 *et seq.*)

Nevada

Compiled Laws, 1929, Supp., 1931-1941, sec. 3656-121.

This is not a bureau law. Fire companies are required before receiving a license or renewal of license to file with the commissioner their special, specific and tariff rates, which tariff rates are to be approved by the commissioner before any policy of insurance shall be written or furnished by such company or its agent. Companies and agents are required to observe rates so filed and not to deviate therefrom until amended or corrected rates have been filed with the commissioner and approved by him. The act applies to fire companies only.

New Hampshire

Public Laws, 1926, c. 271, sec. 14.

Not a bureau law. The act provides simply that a person who feels aggrieved by the rates charged by a fire insurance company doing business in the state may make complaint to the commissioner, who shall hear the parties, and, if it appear to him that the rate charged is excessive, shall fix a reasonable rate, and the rate so fixed shall be binding on all companies doing business in the state. A fine of $200 is provided for refusal to insure property at the rate fixed by the commissioner.

New Jersey

Stats., Ann., 17:29—1 et seq.

Not exactly a bureau law, but an anti-discrimination and anti-rebating law, generally applicable, with certain exceptions, and implemented by provisions for a rate filing and a statutory process for removal of discrimination. It contains certain provisions applicable specifically to fire insurance.

Filing Provisions.—No insurer against the hazards of fire, etc., shall make any such insurance except in accordance with general basis schedules, filed with the commissioner, and embodying basis rates, charges, credits, terms, conditions, permits, standards and other data necessary to the computations of equitable rates and rules of practice for the insurance, or with the amendments to the general basic schedules which shall be filed with the commissioner from time to time.

Bureau Provisions.—Any one or more insurers, singly or jointly, may employ for the making of the general basic schedules and rates at the filing thereof, the services of such experts as they may deem advisable for the purpose.

Schedule Rating.—This apparently applies generally. Every insurer or agent is required within ten days to furnish to any person on whose risk a rate has been made by the insurer or his authorized representative full information as to the rate, and if the property on such risk is rated by schedules, applying particularly to such risk, a copy of the schedule. The act contains a provision for the granting of hearings to persons requesting changes in rates.

Discrimination.—This is also generally applicable.

(a) No insurer shall fix or make a rate or schedule of rates or charge, claim, collect or receive, directly or indirectly, or through any special rates, tariff, drawback, rebate, concession, device or subterfuge, a rate for insurance which discriminates unfairly between risk in the state of essentially the same hazard.

(b) Insurers must not allow compensation to any local agent in excess of that allowed anyone of its local agents on such risks in the state.

(c) An anti-rebating provision is added.

Removal of Discrimination.—The ordinary provision for administrative removal of discrimination after notice and hearings. Discriminations are not to be removed by increasing the rates unless it is made to appear to the commissioner that the increase is justifiable.

Exceptions.—Life insurance: marine or transportation hazards other than automobile: insurance on property on risks outside the state. The act apparently does not apply to compensation insurance. There is a provision which practically excepts contracts for the introduction of automatic sprinklers, containing provisions for obtaining or guaranteeing insurance against loss and damage by fire or water for a specified time at a specified rate.

Litigation.—The provision as to agents' commissions has been litigated, one case going to the Supreme Court of the United States, where its constitutionality was upheld.

O'Gorman & Young v. *Phoenix Assurance Co.*, 146 Atl. 370
O'Gorman & Young v. *Hartford Fire Ins. Co.*, 282 U. S. 251

New Mexico

Statutes, Ann., 1929, Supp. 1938, secs. 71-148, 71-162, 71-167, 71-216.

The first of these sections is a general anti-discrimination and anti-rebating provision. The second is a provision requiring the filing of forms, rates, manuals, applicable to life, accident and health companies, coupled with a provision applicable to all other lines of insurance requiring companies on demand to furnish the Superintendent with information as to the method employed in fixing rates on any particular risk or classes of risks. The third is a provision authorizing any two or more companies to employ a common expert for rating purposes. The fourth prohibits discrimination in hail insurance.

New York

McKinney's Consolidated Laws, Book 27, secs. 180 et seq.

This is a bureau law, permissive in character, applying generally, with certain exceptions. The law is long and very complete, and has been recently revised. Its original goes back to the early days of rate regulation and has gone through a series of modifications. A distinction is made between rating organizations, defined as organizations for making rates to be used by more than one insurer and service organizations. The law permits complete liberality as to method of organization, but requires the filing of organization data and list of membership, and the obtaining of a license before operation. The bureau is required to furnish services without discrimination, to admit any authorized insurer, not a member, as a subscriber. It is required to give hearings on requests for rate changes. It may not charge membership fees or licenses to licensed brokers, or refuse to do business with, or permit payment of commissions to, such brokers except for refusal to adhere to the reasonable rules of the organization. Examination is at the discretion of the superintendent.

Service organizations must file organization details, but are not required to obtain a license, and the other regulatory provisions noted are not applicable.

Filing Provisions.—

(a) Insurers and rating organizations are required to file with the superintendent upon request every rate, manual, schedule of rates, classification of risks, rating plan and every other rating rule made or used by it, and all other information concerning the application and calculation of rates made or used by it.

An insurer who becomes a member of or subscriber to a rating bureau may authorize the superintendent to accept bureau filings on its behalf.

(b) Filings must state or clearly indicate the character and extent of coverage to which any rate or modification thereof will be applied.

(c) No insurer shall file any rate, manual or schedule of any organization except as a member or subscriber thereof.

Schedule Rating.—Rating organizations and insurers making and filing their own rates shall furnish on demand and on the payment of reasonable charges to any assured or his authorized representative, all pertinent information as to such rate, and if it be rated on schedule with a copy of the schedule.

Rate Compacts and Agreements.—The common prohibition, addressed to bureaus and to insurers making their own rates, against the making of rates to be applied to a risk on condition that the whole or any specified part of the insurance shall be placed with bureau members or with the insurer.

Deviations.—The deviation provisions are unusually extensive.

(a) Members or subscribers of rating bureaus are prohibited from making deviations from bureau rates, except as provided.

(b) Insurers and their agents, employees and representatives and insurance brokers are forbidden to charge, demand or receive a rate or premium which deviates from rates made and last filed by or on behalf of such insurer or to issue a policy involving a violation of such filings.

(c) An insurer may apply to the superintendent for approval on its behalf of a uniform percentage increase or decrease in the rates established and publishd by a rating organization of which it is member or subscriber. Application must be made 30 days prior to effective date and notice given to the bureau. The superintendent may refuse approval on the grounds that the proposed rates are likely to be inadequate, unfairly discriminatory or unreasonable. Within 30 days after such ruling, the insurer may request a hearing. If the application is approved, the decrease or increase shall be uniformly applied to all risks rated by the rating organization; but if the organization established rates for more than one kind of insurance, it may with the superintendent's approval be limited to one or more kinds. The superintendent is required to give consideration to available statistics showing statewide experience of all insurers with respect to such kind of insurance and class or classes of risks. In case of fire insurance this experience must cover a five year period.

Approvals are for the period of one year unless sooner withdrawn by the insurer with consent of the superintendent.

Discrimination.—

(a) No rates shall discriminate unfairly between risks involving substantially the same hazards and *expense elements* or between risks in the application of like charges and credits.

(b) There are a number of provisions as to rebates.

Removal of Discrimination.—Ordinary provisions for administrative removal of unfair discrimination after notice and hearing. Discriminations are not to be removed by increasing rates unless the increase is approved by the superintendent as reasonable. Before making an order the superintendent is required to notify the rating organization affected and all persons he deems likely to be affected. Rating organizations are required to notify their members.

Rate Control.—

(a) Rate organizations and insurers are required to make and adopt basic classifications, minimum classes, flat or schedule rates.

(b) Rates must be adequate and reasonable for the classes to which they apply.

(c) Rates must not make unfair discriminations.

(d) Consideration must be given (a) to past and prospective loss experience including conflagration and catastrophe hazard, if any, both within and without the state (b) to all features reasonably attributable to the class of risks (c) to a reasonable profit (d) to policyholders dividends, in case of participating carriers.

(e) In case of fire insurance rates, consideration must be given to the experience of fire insurers during a period of not less than five years.

(f) Provision is made for annual filings and compilation of experience of premiums and losses classified by kinds and types of insurance. They may be made with a rating organization or an agency approved by the superintendent. Forms of return and classifications may be established from time to time by the superintendent. Provision is made for the consolidation of returns. Mutual fire insurance companies insuring sprinklered risks are permitted to make returns on the basis of comprehensive coverage.

(g) If the superintendent finds that any rate filings made with him are not in compliance with the provisions of the article, or that they provide rates or rules which are inadequate, excessive, unfairly discriminatory or otherwise unreasonable, he may order the same withdrawn, and at expiration of 60 days the same shall be regarded as no longer on file. Notice and hearing are provided.

(h) Rate filings for workmen's compensation insurance, motor vehicle insurance required by law and surety bonds given in lieu of required motor vehicle insurance, must not be made effective until approved by the superintendent.

(i) Provision is made for ordering, on notice and hearing, that the rates on any class of risks, found to be excessive, discriminatory, inadequate or unreasonable be adjusted. The superintendent is empowered to approve reasonable classifications of risks, with due regard to past and prospective loss experience, conflagration or catastrophe hazards, reasonable profit, and in case of participating companies to policyholders' dividends.

Exceptions.—The following are excepted: (a) contracts of reinsurance, (b) insurance on risks located outside the state, or motor vehicles and aircraft principally garaged and used outside the state, (c) policies of assessment cooperative fire insurance companies, (d) annuities, life insurance, including non-cancellable disability benefits, marine insurance, other than contracts of insurance on automobiles and aircraft, marine protection and indemnity insurance, accident and health insurance. The superintendent may, however, make investigation of these classes of risks and call on rating organizations to furnish data.

Application.—General, except as above.

Litigation.—There has been some little litigation under the New York law, none of a very spectacular kind. A good part of it includes workmen's compensation cases, which are here given because they have some application to the meaning of the law.

(1) *Rosensweig* v. *Whitney,* 222 N. Y. S. 87. This case concerned the status of associations set up by rating organizations for special purposes, and indicated that a plan imposing certain obligations on brokers in connection with business placed by them was illegal.

(2) *Importers' Ins. Co.* v. *Rhoades,* 146 N.E. 648. See also 205 N. Y. S. 628. This case held that a rating organization could not refuse to furnish service because of refusal to maintain the rules of the rating organization as to commissions, brokerages and number of agencies.

(3) *Opinion of Attorney General,* 1935, p. 195. This indicates that ratemaking associations are not public or quasi-public organizations within the scope of the Employees' Retirement system.

(4) *Kaplan* v. *Travelers Ins. Co.,* 269 N. Y. S. 560, 277 N. Y. S. 95—A workmen's compensation case upholding the validity of classifications, rules and rates determined by the superintendent.

(5) *Buffalo Ass'n of Fire Underwriters* v. *Noxsel-Dimick Co.,* 253 N. Y. S. 40, 256 N. Y. S. 263, 184 N.E. 142. The taking of power from underwriters' association to deal with premium rates is held in this case to take away also their power to maintain uniform commissions to brokers.

(6) *Peabody* v. *Travelers Ins. Co.,* 205 N. Y. S. 536, 148 N.E. 661, 150 N.E. 547. This declares illegal and void an agreement between a broker and an insurance company that a policy of workmen's compensation insurance should be issued and carried at a certain rate, irrespective of the fact that higher premium rates be thereafter fixed and approved by the rating bureau and by the superintendent.

(7) *Employers' Liability Assurance Co.* v. *Success Uncle Sam Cone Co.,* 208 N. Y. S. 510. Upholds the validity of rectification of classification and rate, after effective date of policy in accordance with bureau rules and rates approved by the superintendent, the policy containing the provision that rates were subject to modification.

(8) *Employers' Liability Assurance Co.* v. *Hayes Const. Co.,* 213 N. Y. S. 795, 153 N.E. 68. Upholds the validity of rectification of rates in a policy containing a provision as in the foregoing case, and making the rectification date back to the date of issue of the policy.

(9) *Great American Indemnity Co.* v. *Abbott Glass Co.,* 267 N. Y. S. 523
Independence Indemnity Co. v. *Albert A. Volk Co.,* 226 N. Y. S. 457

These cases involved the question as to what notice shall be given to the assured in case of modification in compensation rates.

(10) *New Jersey Fidelity, Etc. Inc. Co.,* v. *Van Schaick,* 259 N. Y. S. 108, 185 N.E. 721. This indicates that the superintendent has no authority to impose penalties on a fire insurance company for issuing policies at rates other than filed, but should give notice of the violation to the attorney-general.

(11) *People* ex rel *N. Y. Fire Ins. Exchange* v. *Phillips,* 196 N. Y. S. 202, 142 N.E. 574. This case involved the anti-discrimination law, holding that the superintendent could not, under that law, declare the bureau guilty of unjust discrimination for refusing to give credit for an automatic sprinkler device not submitted to or approved by its testing department, on a finding that the third device was as effective as one for which a reduced rate had been allowed.

(12) *Matter of Groh,* 167 N. Y. S. 883
American Smelting, Etc. Co. v. *Stettenheim,* 164 N. Y. S. 253
Kennedy v. *Supreme Council,* 177 N. Y. S. 268
Tanenbaumy Rothenberg, 194 N. Y. S. 315, 142 N.E. 267
Arcim Corp'n v. *Pink,* 2 N. Y. S., 2nd, 709 21 N.E. 2nd 213
Opinions of Atty. Gen., 1912 P. 535, (1918) 17 State Dept. Reports 478, 1929, P. 217
Munch Brewery Co. v. *Grief,* 6 N. Y. S. 2nd 989, 11 N. Y. S. 2nd 126
Simmonds Corp'n v. *Conway,* 245 N. Y. S. 879, 177 N.E. 168
Goldman v. *Pink,* 1 N. Y. S. 2nd 562
Sturm v. *Truby,* 282 N. Y. S. 433.

These cases all deal with discriminations and rebates.

North Carolina

Code, 1939, secs. 6388 et seq.

A bureau law, general in scope, but rather brief. Bureaus serving more than one insurer in "suggesting, approving or making rates" for insurance, including surety bonds, on property or risks in the states are required to file with the insurance commissioner copies of organization papers and by-laws, with any amendment thereto, together with its business address, and a list of the members represented by it. There is no licensing provision.

Filing Provisions.—Bureaus and insurance companies must file with the commissioner whenever he may call therefore, any and every schedule of rates and such other information concerning such rates, as may be suggested, approved or made by such bureau or insurer.

Schedule Rating.—Provision is made for keeping records of proceedings and for furnishing to any person or his authorized representative full information as to his rate, and if the risk is rated on schedule, a copy of the schedule. Provision is made for giving hearings on requested changes in rates.

Rate Compacts and Agreements.—Rates, schedules, etc., are not to be fixed on the condition that the whole or any part of the insurance is to be placed at such rate or with the members or subscribers of such rating organizations.

Deviations.—No provisions.

Discrimination.—No rate or schedule is to be fixed and no rates to be charged which discriminate unfairly between risks of essentially the same hazard. In case of fire insurance rates, unfair discrimination is forbidden between risks in the application of like charges and credits, or between risks or essentially the same hazard and having the same degree of public protection against fire.

Removal of Discriminations.—The usual method of administrative removal of discriminations after notice and hearing, with provision that discrimination shall not be removed by increasing rates unless it appears to the commissioner that the increase is justifiable.

Rate Control.—(Applies to fire insurance only.) Complaint is filed with the commissioner stating in detail the grounds on which the complainant asks for relief. After notice and hearing, the commissioner makes a finding as to whether the established rate is excessive or unfair, and makes recommendations.

Exceptions.—(a) Life insurance, (b) marine or transportation risks other than contracts for automobile insurance, (c) insurance on property or risks located outside the state, (d) title and credit insurance. (Companies on the mutual or cooperative plan were formerly excepted.)

Application.—General, except as above.

North Dakota

Civil Code, Supp. 1925, sec. 4922, Laws 1929, c. 152.

The first of these references is a prohibition generally applicable of discrimination in the issue or cancellation of policies. The second applies to fire insurance only and contains:

(a) The common provision that a rating bureau shall inspect risks specifically rated on schedule and make a written survey thereof with provision that copy shall be furnished to the commissioner and to the owner on written request.

(b) On a written complaint that the survey is not correctly made up in accordance with standard methods of rating used in the state, the commissioner is empowered to make full investigation and to order the rating corrected to conform to standard procedure. A copy of the complaint is to be furnished the bureau.

(c) A provision for notice and hearing. There is a provision that rate be suspended pending the hearing "and in the event final determination shall be that such rate is excessive, any overcharge on account of such rate found to be excessive shall be refunded to the *insurer.*" (Italics those of the writer.)

Ohio

Page's Ohio General Code, Ann. sec. 9592 1 et seq. See also Constitution, VIII, 6.

The constitutional reference contains a general power to regulate rates. The code reference contains a bureau law of the type requiring every insurer to be a member of or to maintain a rating bureau. Bureaus are required to maintain offices in the state. The organization data are to be filed on request.

Filing Provisions.—

(a) The superintendent may order the filing of rates, schedules, forms, rules, regulations, etc.

(b) Deviations are required to be filed.

Schedule Rating.—The usual provision for the inspection of risks rated on schedule, making written survey and recording the same and furnishing a copy of the survey to the owner on request.

Rate Compacts and Agreements.—

(a) The usual prohibition against agreements for controlling the placing of the whole or any part of any insurance.

(b) The usual regulation of agreements with regard to making, fixing or collecting of any rate.

(c) It is stipulated that the act does not repeal or affect the anti-trust provisions of the general law.

Deviations.—Deviations may be made after notice to superintendent and bureau, with filing of schedules providing for the same. Deviations must be uniform for all risks in the class for which deviation is made. No approval is required.

Discrimination.—The common form of anti-discrimination provision.

Removal of Discrimination.—The common form of administrative removal of discrimination after notice and hearing. Discriminations not to be removed by increasing rates unless it is made to appear to the satisfaction of the superintendent that the increase is justifiable.

Rate Control.—No provisions.

Exceptions.—Mutual protective associations are excepted.

Application.—Applies to insurance against fire and lightning.

Litigation.—
Brand v. *Safford,* 160 N.E. 464
General Ins. Co. v. *Bowen,* 196 N.E. 774

The first of these cases relates to the power of the superintendent to investigate and disapprove an agreement between companies and their rating bureau. The second of these cases involved questions of discrimination and deviation arising from a company quoting the same annual rates for a full five year term policy payable in advance and for a five year policy payable in annual installments and terminable at the end of any year, the rate being relatively lower than that for a one year policy. It was held that there was a lack of uniformity in application to all risks of the same class, and therefore discrimination.

Oklahoma

Statutes, Ann., Tit. 36, secs. 131 et seq.

This act follows generally the lines of the Kansas act, and like that law is directed to companies rather than to bureaus. The references to bureaus are slight and incidental. A board of three consisting of the insurance commissioner, the state fire marshal and a third appointed member who acts as secretary administers the act. Its jurisdiction is over rates of fire, tornado, plate glass and employers' liability insurance, over rating bureaus and over agents' licenses.

Filing Provisions.—Companies are required to file with the board a general basis schedule showing rates on all classes of risks insurable by such company, and all charges, rates, terms, privileges and conditions affecting such rates or the value of the insurance to the insured. Changes in schedule must be made on 10 day notice to the board stating the changes to be made in schedules on file and the effective date. The change must be shown by filing new schedules or by reference to schedules already on file. Changes on less 10 days notice may be made by permission of the board. A company writing a risk for which no rate has been filed is required to file within thirty days a schedule of the property or liability showing the rate thereon. The schedule must conform to the general basic schedule required as above.

Deviations.—There are no special deviation provisions but a new schedule must be filed before a deviation is made. Companies are forbidden to write business until their schedules of rates have been filed, or to write business at a rate different from that contained in the schedule or to remit or refund in any way any portion of the rate or extend to any person any privilege or inducement not specified in the policy.

Discrimination.—The anti-discrimination provision is like that of the Kansas law and in effect forbids the charging of a greater, less, or different compensation for insurance of any property or liability in the state than it charges, collects or receives from any other person or persons for like insurance for risks of like kind and hazards under similar circumstances and conditions. Violation of this provision is declared to be unjust discrimination.

Removal of Discriminations.—No administrative provision.

Rate Control.—When the board shall determine that any rate made by the insurance company in the state is excessive, unreasonably high or inadequate to the safety and soundness of the company it is authorized to direct the company to file a higher or lower rate, commensurate with the risk, but in all cases the rate must be reasonable. Court appeal is provided. If the court suspends the order complained of, the petitioners must furnish a bond for the repayment of overcharges, and the court may require them to keep a record and make reports to the insurance board, with names and addresses of persons to whom overcharges are to be refunded as ordered by the court.

Exceptions.—The exceptions are somewhat extensive owing to the sweeping nature of the filing provisions.

Kinds of insurance excepted are (a) life insurance, (b) marine insurance, (c) insurance on growing crops of grain, cotton or fruit, (d) transportation risks or hazards other than automobile liability, (e) insurance on property located outside the state, (f) contracts of title insurance or mortgage guarantee, (g) hail insurance.

Provision is made that the exception does not apply to employers' liability insurance. A second section forbidding rebating, makes exception of domestic mutual fire insurance companies. A concluding section declares the act not applicable to fraternal associations.

Application.—The act applies to companies writing fire, tornado, plate glass, and insurance against the legal liability of employers.

Litigation.—*Ins. Co. of North America* v. *Welch,* 154 Pac. 48 (1918). Sustains constitutionality of act.

Associated Industries v. *State Ins. Board,* 46 Pac. 2nd 361. Sustains (a) right of board to give consideration to losses incurred, as well as of losses paid, (b) to fix the experience period to be used as the basis of ratemaking, (c) to determine the expense loading on expert evidence and other testimony.

(A workmen's compensation case)

Georgia Home Ins. Co. v. *Choctaw Cotton Oil Co.,* 5 Pac. 2nd 152

Metropolitan Life Ins. Co. v. *Lillard,* 248 Pac. 841

These refer to the anti-discrimination provisions.

Oregon

Code 1930, Supp. 1935 secs. 46-107, 47-1605. (In Compiled Laws, ann., these references are, secs. 101-107, 101-1605).

The first of these references applies generally to every foreign company, other than marine. Each company is required to file with the commissioner its rating schedule and policy forms. Deviation is forbidden until amended or corrected rating schedules have been filed. Discrimination between risks of essentially the same hazard is forbidden: There is a provision that these provisions are not to prevent the operation of participating plans. Acceptance of the schedule of a rating bureau authorized under section 1605 is considered a sufficient compliance with the act.

Section 1605, is a bureau law closely resembling that of Idaho, and applying generally to fire insurance. Bureaus may be maintained by insurers or persons, residents of the state. Bureaus must maintain local offices, and are regarded as engaged in public service. Offices are to be open during regular office hours for information of citizens of the state. The commissioner may inquire as to details of organization, maintenance and operation. Records are required to be kept, showing work performed, and receipts and disbursements.

Filing Provisions.—

(a) Rating bureaus are required before publishing or furnishing rates to file their rating schedule with the commissioner, and not deviate therefore until amended schedules are filed.

(b) Insurance companies must file rating schedules or give written notice to the commissioner of the acceptance of the schedules of a rating bureau; but may accept schedules of a bureau in part and file their own schedules as to other classes, uniform throughout the territorial classification. A company may on 30 days notice abandon the schedules of a bureau and file its own schedules.

(c) The Idaho provision for filing the short rate cancellation table is made with a certain exception.

Schedule Rating.—The usual provision for inspecting risks rated on schedules, making written surveys and recording the same, and furnishing copy of the survey to the owner on request. This coupled with a. provision for giving hearings on request for changes of rates.

Stamping Provision.—The law contains provisions like those of Idaho for the appointment of a chief examiner, with duties to inspect applications and daily reports, approve them if in accordance with filed schedules, request correction if they are not, and notify the commissioner of failure to make correction. The provisions made in Idaho as to companies filing their own schedules are included.

Rating Compacts and Agreements.—Agreements with the insured as to time the rate shall remain in effect or as to placing the whole or any part of the insurance forbidden.

Deviations.—Deviations may be made only if amended classifications are filed. Companies are permitted to adopt bureau rates in part only, or to cease to use bureau rates, but must in such case file schedules of their own.

Discrimination.—Anti-discrimination provision similar to that in the Idaho law.

Removal of Discrimination.—A somewhat elaborately stated administrative process for the removal of discrimination after notice and hearing. The usual provision that discriminations shall not be removed by increasing a rate unless the commissioner finds the increase justified. As in Idaho a double right of appeal is provided.

Rate Control.—No provisions.

Exceptions.—An exception is made as to companies which have done business in the state for five years and have confined 95% of their business to a single classification of risk exclusively.

Application.—Generally to fire insurance only. It is specifically provided that the word "exchange" or "insurer" shall mean a reciprocal exchange or a mutual fire insurance company.

Litigation.—*Ocean Acc. & Guar. Corp'n* v. *Albina Marine Iron Works,* 260 Pac. 229. As to charging of rates other than those filed.

General Ins. Co. v. *Earle,* 65 Pac. 2nd 1414. Participation plan not a deviation. There are numerous opinions of the attorney-general construing this law.

Pennsylvania

Purdon's Pennsylvania Sts. Tit. 40 secs. 53, 55, 691-702.

A bureau law, permissive in character. A company must file its own schedule of rates or be a member of a rating bureau. The sections as to examination and the power of the commissioner to require information are detached from the rest of the act.

Filing Provisions.—

(a) A company must file a schedule of rates with the commissioner or be a member of a rating bureau.

(b) The commissioner may require filing of schedules, rates, forms, rules, regulations, etc.

(c) Surveys and completed schedules are to be filed only on complaint.

(d) Deviations must be filed.

Schedule Rating.—The common provision for inspection of risks specifically rated on schedule, making and recording written surveys thereof and furnishing a copy of the survey to the owner on request.

Rate Compacts and Agreements.—

(a) The common provision prohibiting agreements to control the placing of the whole or any part of an insurance.

(b) The common provision regulating agreements with regard to the making, fixing, or collecting of any rate.

Deviations.—May be made on notice to the bureau and to the commissioner. The reason for the deviation must be filed with the commissioner. With the notice to the bureau must be filed a schedule showing the deviation. The deviation must be uniform in application to all risks in the class for which deviation is made.

Discrimination.—The ordinary form of anti-discrimination provision.

Removal of Discriminations.—No special statutory procedure for the purpose.

Rate Control.—No provisions.

Exceptions.—The act is applicable to mutual fire insurance companies and reciprocal associations only if they have filed with a rating bureau, in their application for membership, an agreement, to become subject to the provision of sections 691-702.

Application.—To insurance against fire and lightning.

South Carolina

Code, 1932, secs. 8003 et seq.

A bureau law of the type requiring every company to maintain or be a member of a rating bureau.

Filing Provisions.—

(a) The commissioner may order the filing of schedules, rates, rules, regulations, etc. The proviso is added that completed schedules of surveys shall be filed only when there is a complaint pending.

(b) Deviations must be filed.

(c) Affidavits must be filed when a rate is requested to meet competition.

Schedule Rating.—The usual provision as to inspection of risks specifically rated on schedules, making written surveys and recording the same, and furnishing copy to owner on request. A provision is added that a written survey furnished by a rating special agent shall be deemed sufficient compliance with the section.

Rate Agreements and Compacts.—

(a) The usual provision against agreements designed to control the placing of the whole or any part of an insurance.

(b) The usual provisions as to agreements with regard to the fixing, charging or collecting of any rate.

(c) Prohibition of agreements with agents not to write insurance in non-bureau companies. Prohibition of company agreements not to deal with agents who write insurance in non-bureau companies.

Deviations.—May be made on notice to the commissioner and bureau, and filing the variation from the bureau rates, which shall be uniform throughout the territorial classification. A company is permitted to make uniform variations from the bureau rates. Approval of the deviations is not required.

Discrimination.—The usual prohibition against discrimination. To this is added a very unusual provision permitting a company to file affidavit as to the existence of competition with a non-license or unauthorized company, and requiring the commissioner to grant permission to make a rate for the specific risk to meet the competition.

Removal of Discrimination.—The usual provision for administrative removal of discrimination after notice and hearing. A provision is given for a reviewal of orders by a special board of three members, known as the South Carolina insurance commission.

Rate Control.—The common provision for ordering general reduction in cases where the compiled experience for five years shows an excessive profit. The reduction is to be applied to such class or classes as the bureau may elect, and it is provided that companies shall not be required to reduce rates in classes that have not shown a reasonable underwriting profit for the five year period. It is specified that consideration be given the conflagration hazards within and without the state. An appeal lies to the South Carolina Insurance Commission, and thence to the court.

Exceptions.—

(a) Mutual fire companies operating on the investment plan.

(b) Property protected in whole or part by automatic sprinklers and insured in connection with an inspection service.

(c) Rolling stocks of railroad companies and other common carriers.

(d) Property of common carriers used or employed in business of carrying freight, merchandise, or passengers.

(e) A provision that the act shall not be construed to prohibit contracts to the installation of automatic sprinklers and containing provisions for obtaining a guaranteeing insurance against loss or damage by fire or water for a specified time and at a fixed rate.

Application.—To insurance against fire and lightning.

South Dakota

Code, 1939, secs. 31-3701 et seq.

This is a fragment of a bureau law, permissive in character. Companies are required to report membership in bureaus, and bureaus are required to file data as to organization, maintenance and operation, and are subject to an examination.

Filing Provisions.—The commissioner may require the filing of schedules, rates, forms, rules, regulations, etc.

Schedule Rating.—The usual provision as to inspection of risks specifically rated on schedule, making written surveys and recording same, and furnishing copy to owner on request.

Rate Compacts and Agreements.—An unusual prohibition against compacts for the purpose of making, establishing or maintaining a general flat advance or reduction of statewide basis rates, terms, estimates, or conditions affecting the cost of premium of fire, lightning and tornado insurance or city, town, village or county property situated in the state, except such agreements as may be filed with and approved by the commissioner. It is provided that appeals may be withdrawn, and that any order of the commissioner may be appealed from.

Discrimination.—The usual prohibition of discrimination.

Exceptions.—County or township mutual companies are accepted.

Application.—Fire, lightning and tornado insurance.

Tennessee

Williams' Code, 1934, secs. 6176-6178.

A brief provision, making prohibition of discrimination, the provision following the usual fire form. It is implemented by the provision authorizing the commissioner to require the filing of schedules, rates, forms, rules, regulations, etc. and by a penal provision. It applies to fire and casualty companies and to insurance "against the risks of fire, lightning or windstorm, casualty or indemnity contracts."

Texas

Vernon's Texas Statutes, 1936, Art. 4878 et seq.

This is not a bureau law. Rates are fixed, determined and promulgated by the state insurance commission. The various points as to rating matters may be taken in the order in which they come.

(1) The commissioner has sole and exclusive authority to "prescribe, fix, determine and promulgate" the rates of premium to be charged by fire insurance companies with power to change same. The commission is required to ascertain the annual fire losses and amount of premiums collected, in such manner as to enable it to determine equitable rates, methods of reducing losses and reducing rates.

(2) The rates promulgated are maximum rates. Companies may write insurance at less rates, but not at greater, but if they write at less rates, the rates charged must be applicable to all risks of like character in the community.

(3) The law applies to all companies issuing contracts or policies of insurance against loss by fire on property within the state, whether the property is fixed or removable, stationary or in transit, or whether billed for shipment to another state or country. It includes the shore end of marine risks insured against loss by fire.

(4) The commission has large powers to require various kinds of information from companies, their officers and agents, to make visitations and examinations, require production of books and documents, and take testimony under oath.

(5) Rates are required to be reasonable. Schedules shall show all charges, credits, prvileges, terms and conditions affecting rates. Copies of schedules are to be furnished to companies and to citizens of the state at court. Rates take effect on the entering of an order, and notice is required to be given to companies affected. The commissioner and any inspector, who shall inspect any risk for rating purposes is required to furnish the owner at the time of inspection with a copy of the report, showing all defects that may operate as a charge to increase the rate.

(6) Companies issuing policies are required to furnish the policyholder with a written or printed analysis of the rate. Every local agent of a company is required to have and exhibit to the public copies of the schedules covering risks on which he is authorized to write insurance.

(7) The commission may change any rate on 30 days notice, or prescribe that it may be in effect for a limited time. When no rate is fixed by the commission, companies may determine the rate, notify the commission thereof, and the rate collected, which is subject to review by the commission.

(8) *Companies may petition for changes in rates.*

(9) The commission has authority to give cities, towns, etc. credit for hazards removed and for added fire equipment, and to give credit for good fire records.

The commission may compel companies to give policyholders credit for hazards removed, and make proportionate returns of unearned premiums.

(10) Rates are revised by the commission on 30 days' notice. No policy in force prior to the changes is affected thereby.

(11) The commission is required to give hearings as to rates on complaints by citizens, policyholders, insurance companies or civic associations or civil authorities. There are extensive provisions as to giving notice, holding hearings, issuing orders and giving rights of appeal.

(12) Companies are required to write insurance in accordance with the terms of the law. If writing at less than the established rates, they must furnish the commission with an analysis of the rate. Rebates and discriminations are prohibited.

(13) Companies may make rules and regulations for collection of their rates. Bona fide extension of credit is not a discrimination.

(14) Exception is made of purely mutual and purely profit-sharing domestic fire insurance companies not carried on for a profit, nor to purely cooperative inter-insurance and reciprocal exchanges, not carried on for profit.

(15) The law applies to insurance against lightning, tornado, windstorm and hail as well as fire, with the exception of insurance against loss by hail or on farm crops, flood or rising water.

Vermont

Public Laws, 1933, c. 281, secs. 7118 et seq.

A general bureau law, compact and quite complete. Bureaus which make rates for more than one underwriter, including surety bonds, must file with the commissioner a document pertaining to their organization, their business address and a list of their members. The commissioner has authority to visit and examine.

Filing Provisions.—Filing of rates is to be made with the commissioner as he may call therefor.

Schedule Rating.—Organizations are required to keep records, to furnish to insured or agent full information as to rates, and if property or risk be rated on schedule, a copy of the schedule. Provisions are annexed for granting hearings on applications for changes in rates.

Rate Compacts and Agreements.—Rating organizations are prohibited from charging fees to licensed brokers, or from refusing to do business with a broker because he will not agree to secure insurance only at the rates fixed by the rating organization or the parties to an agreement.

Deviations.—No provisions.

Discrimination.—A general prohibition of fixing or charging rates that discriminate unfairly between risks of essentially the same hazards, with the usual fire form of anti-discrimination law added for fire risks.

Removal of Discriminations.—A simple form of administrative procedure for the removal of discrimination after a hearing. Discriminations are not to be removed by increasing rates unless it appears to the commissioner's satisfaction that the increase is justifiable.

Rate Control.—A person aggrieved by any rate may complain to the commissioner, who shall call a hearing before a board consisting of himself, the auditor of accounts and a third party named by the bureau or other person making the rate. If the board finds the rates charged are excessive, they are empowered to fix a reasonable rate, binding on all companies doing business in the state.

Exceptions.—(a) Life insurance, (b) marine and transportation risks and hazards other than the automobile insurance line, (c) insurance on property or risks outside the state.

Application.—To all other than the above.

Virginia

Code 1936, secs. 4314 (1) et seq.

A bureau law of the single bureau type. It was enacted in 1928, replacing an earlier law enacted in 1920. Supervision is in the state corporation commission. The law applies generally to all fire insurance companies and to all lines written by such companies except marine and transportation risks, and automobile fire and theft. Provision is made for the organization of the Virginia Insurance Rating Bureau. Government is vested in the members. By-laws, rules and regulations are subject to approval by the corporation commission. The office is required to be in Richmond, Virginia, with branch offices located elsewhere with the approval of the corporation commission.

Filing Provisions.—

(a) No rate, premium charge, schedule, rating method, rule, by-law, agreement or regulation shall become effective or be charged, applied or enforced by a bureau or a company until it shall have first been filed with and approved by the corporation commission. Rates produced by approved schedules may be used pending such approval.

(b) Deviations must be filed and approved.

Schedule Rating.—The usual provision for the inspection of risks rated on schedule, making written survey and recording same, and furnishing copy to the owner on request, without expense to such owner. To this is added a provision for keeping a permanent record and permitting the use of surveys in the possession of the bureau instead of making new surveys.

Rate Compacts and Agreements.—Agreements for making, establishing and collecting rates must be in conformity with the act.

Deviations.—Must be filed with the bureau and approved by the corporation commission. Must be uniform in application to all risks in the class for which variation is made.

Discrimination

Removal of Discrimination.—The commission is empowered after investigation to order removed any discrimination existing between individual risks, classes of risks, or territorial classes of risks or territorial classifications.

Rate Control.—(a) Rates may not be used until filed with and approved by the corporation commission. Rates may be in accordance with an approved schedule may be used pending approval.

(b) Provision is made for investigation of the necessity of a general reduction of rates. If the commission finds that the rates charged over a period of five years are producing a profit in excess of what is reasonable, the commission shall order such reduction of rates as will produce a reasonable profit only. The commission is empowered to consider all phases of business within and without the state. A reduction order shall be applied by the companies subject to the commission's approval. If the companies do not within

30 days submit a classification or classifications which meet with the approval of the commission, it shall apply the reduction in such manner as seems just and equitable.

Exceptions.—No exception as to kinds of companies. Exceptions as to kinds of business are:

(a) Marine insurance, other than shore marine.

(b) Transportation insurance, other than automobile fire and theft.

(c) With approval of the corporation commission, companies insuring flour mills, grain elevators, lumber yards, lumber mills, in connection with an inspection service, may file rates and schedules applicable thereto directly with the corporation commission and not through the bureau.

(d) Provisions of acts do not apply to risks protected in whole or part by automatic sprinklers and insured in connection with an inspection service. A special provision for reports as to such risks is made, and provision for excluding experience from such risks in rate determinations.

Application.—To insurance against all hazards insured by fire insurance companies, except as above.

Litigation.—Aetna Ins. Co. v. *Com.,* 169 S.E. 859

Washington

Remington's Revised Sts. (1940 Pocket Part) secs. 7118, 7119-7119d.

An old rating law, dating from 1911, and amended in 1915, was redrafted in 1935, and the first section amended in 1939. There are really two laws, one general in character, the other applicable to fire insurance. Both are bureau laws of the permissive type.

Sec. 7118 applies to all companies except life, accident and health and marine insurance companies. It contains two regulatory devices only; a filing provision and a pròvision for control of deviations.

Filing and Approval Requirements.—Every company with the exceptions noted, must, as to any business it transacts, file with the commissioner to be approved by him before being made effective, its policy forms, rules, and rating schedule, or it may adopt entirely the advisory rates of any rating bureau organized as provided in section 7119.

A company that has maintained and used in the state its own forms, rules and rating schedules may maintain the same, or amendments thereto, as to the particular class or classes covered by such forms, etc., and adopt the advisory rules and rates of a bureau as to the balance of the class or classes of its business. A company that has not been authorized or has not transacted business in this or any other state for at least five years prior to January 1, 1939, is not permitted to file its own forms, rules and schedules but must be a member of or subscriber to a rating organization until it has had an experience of five continuous years.

Deviations.—Companies and their agents must observe the policy forms, rules and rating schedules as filed, and must not amend the same or deviate from them except as provided. Companies which adopt all or any of their own rating schedules must not amend or correct the same until the amendments have been filed at least fifteen days and have been approved by the commissioner.

Companies which adopt all or any of the advisory rates of a bureau must file written notice of such adoption, and shall not deviate therefrom until after 30 days notice to the commissioner and approval by him.

(a) Approvals may not be granted unless the financial condition of the company and the general experience of all companies over a period of not less than five years warrants the deviation.

(b) No deviation shall be approved for a company having less than five years experience in this or some other state, if it is greater than any deviation in effect.

(c) Deviations must be by uniform percentages of increase and decrease applicable to all rates on all classes adopted by the company, and shall continue in force without change for one year after approval.

Section 7119 applies to fire insurance only. The bureau provisions are similar to those in Idaho and Oregon, i.e., The bureau must be organized and maintained by residents, is regarded as public service in character, etc. The act contains no stamping provisions; though the prohibition against stamping of policies formerly in the Washington law does not appear in the amended form. The law is permissive in character.

Filing Provisions.—Bureaus must before publishing or furnishing any rates, file their rating schedules in the office of the commissioner, and must not vary therefrom until amended or corrected schedules have been filed and approved. Carriers are forbidden to make rates not in accordance with filed schedules. Provision is made for annual filing of experience of premium writings and losses by classifications approved by the commissioner.

Discrimination and Rate Control.—Companies and bureaus are forbidden to fix or make any rate or schedule of rates which is excessive, inadequate, unjust or unreasonable, or which discriminates unfairly between risks and the application of like charges and credits, or which discriminates unfairly between risks of essentially the same hazards, having substantially the same degree of protection against fire. Administrative process for proceeding on notice and hearing in case of rates which in the opinion of the commissioner are excessive, inadequate, unjust, unreasonable or unfairly discriminatory. The commissioner has power to order the "discriminations" removed. An appeal is provided.

The intent of the law, and the provisions of section 7118 indicate a power in the commissioner to approve or withhold approval from rate filings as made.

Litigation.—See *State* ex rel. *Northwestern Nat'l Ins. Co.* v. *Sullivan*, 35 Pac. 2nd, 24, 25.

West Virginia

Code 1937, sec. 3370 et seq. Supp., 1941 for amendment to sec. 3379.

A bureau law, dating from 1913, much amended and in need of a careful revision. The bureau provisions are somewhat numerous (a) the greater part of the law relates to rating bureaus. A company must maintain or be a member of a rating bureau. The usual provisions as to such bureaus are included. (b) Section 3379 as amended required all companies to be members of "a statistical or actuarial service bureau." Provisions as to such bureaus follow in a general way those of rating bureaus but curiously, while ordinary rating bureaus are not required to maintain a local office, statistical and actuarial service bureaus are. (c) Adjusters and adjustment bureaus serving more than one insurer are required by Section 3380 to make adjustments for all companies making request therefore on a pro rata charge basis.

Filing Provisions.—

(a) A rating bureau is required to file with the commissioner a copy of its articles of association and by-laws, and any and all schedules used in making rates. It is also required to file the table or base rates used in each town in the state, and all regulations and rules.

(b) There is the common provision for addressing inquiries as to organization, etc. and authority to require the filing of schedules, rates, forms, rules, regulations, etc. Completed surveys and schedules are to be filed only when there is a written complaint.

(c) Changes in schedules, rules, regulations, contracts and agreements must be filed with the commissioner, who is required to order a hearing, and at the conclusion to enter an order setting forth his "findings." A court review is provided.

(d) Deviations are required to be filed.

Schedule Rating, etc.—

(a) The common provision for inspection of risks rated on schedule, making written survey and recording the same, and furnishing a copy to owner on request, without cost.

(b) In addition, bureaus are required to file in the office all flat rates.

(c) The commissioner is authorized to order resurveys.

Deviations.—Deviations are required to be filed with the bureau and the commissioner, together with schedules providing for such deviation. The deviation must be uniform as to all risks in the class for which variation is made. No approval is required. All carriers are permitted to make "uniform deviations by schedule percentage reductions" in the specific rates of any bureau of which they are members, and bureaus may not make rules which interfere with the making of such reductions.

Discriminations.—The common prohibition of discriminations.

Removal of Discriminations.—There are two provisions for removing discriminations; one in section 3373 which is properly a rate control provision and one in section 3378 the usual administrative provision for removal of discriminations on motion and hearing, with appeal provision and provision for refunding of overcharges.

Rate Control.—

(a) Provision for findings by commissioner as to changes in established schedules, rules, regulations, contracts and agreements. There is no indication that the findings are more than advisory, except for the appeal provision.

(b) After notice and hearing, the commissioner is empowered to determine that any bureau rate or rates are excessive or unreasonably high, or discriminatory, and to direct the bureau to change such rate or rates and to publish and file a rate or rates prescribed by him which are just, reasonable and non-discriminatory. Appeal to the courts, with suspension of the commissioner's order is provided, with provision for refunding of overcharges. The commissioner is given power to compel obedience to his order by mandamus, injunction or other proper court proceedings.

(c) An extremely elaborate section was added in 1939, requiring companies to be members of statistical or actuarial bureaus; regulating such bureaus, requiring carriers to transmit to such bureaus copies of daily reports of all policies written covering property in the state, and for the compilation and transmission to the commissioner, at his discretion, but not oftener than monthly, a report of gross premiums less return premiums by occupational classes, not exceeding 26, and by classification of towns. Provision is also made for reporting of losses, presumably similarly distributed. On notice and hearing the commissioner is empowered to order rate changes downward or upward in particular classes, as it appears that the results show more or less than a reasonable underwriting profit.

The commissioner is required to give consideration to the conflagration or catastrophe hazard, within or without the state, and also to degrees of public fire protection, structural standards, occupancy and exposure hazards. Court review is provided, but rates ordered by the commissioner remain in effect unless otherwise ordered by the court.

Exceptions.—

(a) Farmers mutual companies.

(b) Rolling stock of railroad companies; property in transit while in possession of common carriers; property of such carriers used or employed in transporting freight, merchandise or passengers.

(c) Properties protected by automatic sprinklers.

Application.—Apparently to fire insurance only.

Litigation.—*Aetna Cas. Co.* v. *Lawson,* 166 S.E. 811. Act does not apply to indemnity companies.

Wisconsin

Wisconsin Sts. 1939, secs. 203.23, 203.32 et seq.

A bureau law, dating from 1931, of the type requiring carriers individually to maintain or be members of an "actuarial bureau." Bureaus are for the purpose of inspection, rating risks, making underwriting rules, fire prevention rules, etc. Bureaus are required to have their offices in Wisconsin. Bureau rates are to be approved by the commissioner. If bureaus contain participating insurers, they shall be entitled to elect one member of the managing committee, and if there are as many as eight members, shall elect at least two. Bureaus must procure an annual license, and file their articles of organization, bylaws, etc., with the commissioner.

Filing Provisions.—

(a) Copies of all rating schedules, forms and underwriting rules promulgated or used by a bureau must be filed with the commissioner. Special forms need not be filed unless ordered. Rating schedules must include the basis rates and charges and credits including fire grading classifications.

(b) Deviations are required to be filed.

(c) Rates, forms, and underwriting rules are required to be filed.

(d) The commissioner may require bureaus or insurers to furnish information relating to rules, regulations, rates or underwriting experience in existence at the time the act takes effect.

Schedule Rating.—Risks specifically rated on schedule are to be inspected, and written survey made, which shall be filed in the bureau office. The survey must show basis rates and charges and credits; copy is to be furnished the owner on request. Flat rates also are to be filed. The commissioner has authority to order rerating of any risk or class of risks, and for discharge of these duties is required to employ a qualified rater.

Stamping Provisions.—All daily reports are to be audited, and violations brought to the attention of the agent and the insurer. Failure to correct violations are to be reported to the commissioner. Each risk is to be classified by the bureau according to established classifications, including the standard fire protection grading schedule applicable thereto. Thereafter, the bureau shall stamp on the daily report of each policy the classification and grading of risks covered.

Rate Compacts and Agreements.—No fire, fire and marine and inland insurance company or its agent shall enter into any agreement, combination or compact for the purpose of establishing and maintaining rates; except such agreements as are authorized by statute, or such as may be filed with and approved by the commissioner. Such approval may be withdrawn at any time.

Deviations.—Any insurer may file a deviation upon any class of risk from the rates or from any underwriting rule established by the bureau of which it is a member. Filing must be made with the bureau and the commissioner at least five days before its effective date. Deviations on specifically rated risks must be by percentage increase and decrease and shall in all cases be reasonable and uniform in application to all risks in the same class and regional classification and unless change is authorized by the commissioner shall be effective for one year. Otherwise no insurer or agent may charge a different rate or use a different underwriting rule from those on file.

Discriminations

Rate Control.—

(a) The commissioner of insurance must file in his office the standard rating schedule of public fire protection for each city, village and town. All municipalities shall be graded and classified according to that schedule, and the commissioner after investigation and hearing may order rating of a municipality altered.

(b) General changes in basis rates of rating schedules, forms and underwriting rules are required to be notified by the commissioner to the public and to insurance companies. On request or on his own motion the commissioner may hold a public hearing and shall thereupon rule them as approved or issue a notice of disapproval. Disapproved rates, rating schedules, forms or rules are not to be used by any actuarial bureau.

(c) Schedule of rates, forms and rules are required to be reasonable, fair to the insured and the insuring public and not to discriminate unfairly between risks of essentially the same hazard and regional classification. Regional classifications shall be reasonable, and no regional classification shall be made unless it includes at least 10 adjoining adjacent counties and is first approved by the commissioner.

(d) The commissioner may on complaint or his own motion review any rate, rule or form, and must after a hearing order a change in any rate or disapprove any rule if he finds such rate or rule to be unreasonable, unfair or unfairly discriminatory. Court review is provided by a separate section (200.11) Orders are suspended pending review, with provision for refunding overcharges.

(e) Insurers are required to keep records of total insurance written and gross premiums received less return premiums and cancellations, according to standard classification and grading. Business written on deviation must be resolved into premiums based on bureau rates. Filings of underwriting experience must be filed with the commissioner or with the actuarial bureau or approved agency. Consolidated returns shall be filed by the agency with the bureau and the commissioner.

Exceptions.—

(a) Town mutuals and domestic and mutual cyclone insurance companies.

(b) Contracts for automobile insurance.

(c) Rolling stock of railroads, property in transit while in possession of common carriers, and property of common carriers used in the transportation of freight, passengers and merchandise.

Application.—To insurers by fire and lightning, windstorm and hail except on growing crops, sprinkler leakage, and when supplemental to or in combination with a policy covering direct or consequential fire, loss by explosion, riot, civil commotion, damage to other property from aircraft and self-propelled vehicles, and smoke damage.

Litigation.—Northwestern Nat'l Fire Ins. Co. v. *Mortensen,* 284 N.W. 13 (1938)

Wyoming

Revised Sts., 1931 secs. 57-216 et seq.

A bureau law of the type requiring each company to maintain or be a member of a rating bureau. Bureaus are required to maintain offices within the state, except that mutual companies making their own rates may maintain a bureau anywhere in the United States. The statute follows the model law quite closely.

Filing Provisions.—

(a) Rating bureaus must file with the commissioner copies of all flat rates and rates on farm property.

(b) The commissioner may address inquiries as to organization, maintenance and operation of bureaus, and may require filing of schedules, rates, forms, regulations, etc.

(c) There is a provision similar to that in Colorado for the filing of rules and regulations for writing of insurance "except such as are in force in all other states," with power in the commissioner to order same suspended.

(d) Deviations are to be filed.

Schedule Rating.—Usual provisions for inspection of risks specifically rated on schedules, making and recording a written survey and furnishing copy to owner on request without expense. This is supplemented by a provision for filing and recording flat rates and rates on farm property.

Rate Compacts and Agreements.—The common provisions against agreements relative to controlling the placing of the whole or any part of the insurance and regulating agreements as to the charging, fixing or collecting of rates except in compliance with the law.

Deviations.—Deviations must be filed with the bureau and the commissioner 15 days before taking effect. Filing must show amended basis rate and amended charges and credits, and application to individual risks. Deviations must be uniform in application to all risks in class for which made.

Discrimination.—The usual prohibition against unfair discrimination.

Removal of Discrimination.—The common administrative procedure for removal of discrimination by order after notice and hearing, with court review, and provision for suspension of order and refunding of overcharges.

Rate Control.—

(a) The commissioner has power to order certain rules and regulations suspended. Court review is provided.

(b) Provision is made for filing annual reports of premiums and losses by classifications, conforming to classifications of the National Board of Fire Underwriters. The commissioner has power to order the rates reduced, if for a five year period the returns show an aggregate underwriting profit in excess of a reasonable amount. The commissioner is required to give consideration to the conflagration hazard within and without the state. Reductions ordered are to be applied to such class or classes or risks as the bureau or bureaus may elect. There is no provision for approval of the application. A court review of the order is provided.

Exceptions.—

(a) Mutual insurance companies organized under the laws of the state.

(b) Rolling stock of railroad companies, property in transit while in possession of common carriers, property of such carriers used in transporting freight, merchandise or passengers.

Application.—Insurance against fire and lightning.

APPENDIX II

RATE-REGULATORY LAWS SPECIFICALLY APPLICABLE TO WORKMEN'S COMPENSATION AND EMPLOYERS' LIABILITY INSURANCE*

Alabama

Code 1940, Tit. 26, secs. 309, 323.

Sec. 309.—Provides for voluntary compensation insurance by employers in insurers authorized by superintendent; partial insurances of compensation hazard specifically authorized; certain policy provisions required.

Companies must file with superintendent classification of risks, and premiums, together with basic rates and merit rating schedules; same must be approved by superintendent before use as adequate, reasonable and not excessive. Provision for preparation and mailing of copies of approved rates by superintendent to companies. Provision for filing by carriers, or by bureaus, of experience and data on which rates are calculated, at such times as superintendent may designate. In event of failure to file experience, etc., superintendent may presume rates, etc., to be excessive, unreasonable and inadequate. Power to withdraw approvals conferred. Provision securing right to issue participating policies and pay dividends.

Sec. 323.—Penalty provision for soliciting or writing insurance without complying with Sec. 309. See Opinion, attorney general, quar. rep., July-Sept., 1939, R 39. as to powers of superintendent.

Arizona

Code 1939, sec. 56-932, secs. 56-923 to 56-925.

Sec. 56-932.—Regulates insurance by private carriers. Regulatory power vested in industrial commission.

Carriers are required to write and carry all risks for which application is made, and may not cancel except with consent of employer and commission. Commission may direct cancellation of policy. Carriers are "Subject to the rules and regulations of the commission, including rates to be charged, policy forms to be used, and the method of paying compensation." (for form of policy, see 56-933)

Secs. 56-923 to 56-925.—Regulate rates for state compensation fund and state accident fund.

Arkansas

Extraordinary Session, 1939, act 319, secs. 9n, o, sec. 36 c, (see also Appendix I)

Sec. 36c.—Regulates rates for compensation carriers.

Carriers are required to secure a permit from the commissioner of insurance. The commissioner is required to approve an adequate and reasonable rate for each industrial classification, system of merit and experience rating and a minimum premium schedule. Schedule rating is to be based on relative safety conditions, experience rating solely on loss experience. Rates are to apply to all employers assigned to the several classifications, except as modified by rating plans and minimum premium schedule. No insurer is to grant any decrease, or make any increase, in rates approved by commissioner save such as may result from use of approved plans.

Insurers are required to file rates and rating plans which they propose to use. Members of a non-partizan rating bureau making rates for workmen's compensation, may adopt rates and rating plans of bureau. Rates and rating plans shall not go into effect until approved by commissioner.

Rating organizations and bureaus forbidden to make rates or schedule of rates or charge rates which discriminate unfairly between risks in state of essentially the same hazard. Provision for administrative removal of discriminations after hearing.

Provisions for hearings, summoning witnesses, production of books and papers, proceedings to compel obedience and penalty.

* For laws other than those cited in this Appendix having possible application to workmen's compensation insurance, see for states listed below, other appendices as indicated.

Alabama, V; Alaska, V; Arkansas, I; Arizona, V; California, V; Colorado, V; Connecticut, V; Delaware, V; Florida, IV; Georgia, V; Idaho, V; Illinois, V; Indiana, V; Iowa, V; Kansas, V; Kentucky, V; Louisiana, V; Maine, III; Massachusetts, V; Michigan, V; Minnesota, V; Montana, V; Nebraska, V; Pennsylvania, V; Rhode Island, V; South Carolina, V; South Dakota, V; Tennessee, I; Texas, III, V; Utah, V; Vermont, III; Virginia, V.

Sec. 9n, o.—Relates to rating of risks in assigned risk pool. Carriers are authorized to make inspections of assigned risks for purpose of determining adequate and reasonable rates, according to rules prescribed by workmen's compensation commission. An employer may appeal to commission on ground that premium charged is unreasonable or unfairly discriminatory. On notice and hearing, commission may require carriers to adjust the premium to a rate or rates found by commission to be adequate reasonable and not unfairly discriminatory. Right of appeal to courts provided.

California

Insurance Code (Deering, 1937) secs. 11730-11742, 11820-11823.

11730-11742.—Apply to rate regulation for private insurance carriers.

11730.—Defines "merit rating," "schedule rating" and "experience rating."

11731.—Term "insurer" includes state compensation insurance fund.

11732.—Commissioner required to approve or issue as adequate for all insurers a classification or risks and premium rates relating to compensation insurance. He may approve or issue a system of merit rating. Classification and system to be uniform for all insurers.

11733.—Rating systems and classifications covering mines or mining property must provide for separation of risks and rates as to types of employment, and must, at least, make separation of rates for office, surface and sub-surface employees.

11734.—Commissioner may on hearing change any classification or system previously approved.

11735.—Classifications and system not to take account of physical impairment or dependency.

11736.—Insurers must not issue, renew, or carry beyond anniversary date any compensation insurance at rates less than rates approved by commissioner.

11737.—In application of approved system of merit rating, insurer shall show basis rates not less than approved. Reductions in rate by use of system must be clearly set forth in contracts or endorsements.

11738.—Article not to affect right to issue participating policies, but participation refunds must be made only from surplus accumulated on policies of workmen's compensation issued in state.

11739.—Makes statistics and data of industrial accident commission and state compensation insurance fund available to commissioner and requires managers and officers of fund to assist commissioner.

11740.—Authorizes commissioner to require insurers to make annual filing of loss experience.

11741-11742.—Penal provisions.

Secs. 11820-11823.—Relate to rates of state compensation insurance fund.

Colorado

Statutes, Ann., 1935, c. 97 secs. 301-303, 403-411.

Secs. 301-303.—Regulate insurance by private insurers.

Insurance must be written on forms approved by industrial commission. Insurance carriers are required to file with commission, classifications of risks, premiums relating thereto, rates and rating systems. None of these take effect until approved by commission, and commission is empowered to disapprove same as inadequate or to withdraw approvals.

Rate cutting, rebating or any methods whereby employers obtain insurance at rates lower than those fixed are prohibited under penalty.

Secs. 403-415.—Apply to making rates for insurance for state compensation insurance fund.

Connecticut

General Sts., 1930, secs. 5278, 5281.—Rates of employers' mutual insurance associations.

Delaware

Revised Code 1935, secs. 6121-6126.

Requires insurers to file with industrial accident board classification of risks, premium rates and rules, including payroll audit rules and rules for collection of premiums, together with systems of schedule or merit rating. None of these to take effect until approved by board as adequate and reasonable. Approvals may be withdrawn on ground that such classification, etc. is inadequate, unreasonable or unfairly discriminatory.

Carriers forbidden to issue, renew or carry insurance against liability for compensation, or employers' liability except in accordance with classifications, etc. approved by board.

6122.—Systems of schedule or merit rating to be uniform in application; and must be applied on inspection, and by calculation of merit deviation by a bureau or association approved by board. Schedule or merit deviations to be clearly set forth in policy.

6123.—(filing of policy forms)

6124-6125.—Anti-discrimination provision and administrative method of removing discrimination, with court appeal and provision for repaying overcharges, similar to provisions in fire bureau rating laws.

6126.—Provision for annual filing of experience of premiums and losses with board.

District of Columbia

P. A. No. 164, 73rd Congress (1934).

Requires insurers to file manual of classifications and underwriting rules with basic rates for each class, and also merit rating plans, none of which take effect until approved by the superintendent as adequate and reasonable for the group of risk to which they apply. The superintendent may withdraw his approval of any premium rate or schedule on the ground that it is inadequate or unreasonable. A court appeal is provided.

Florida

Acts 1935, c. 17481 sec. 38d.

Practically same as Arkansas Act, section 36c.

Georgia

Code, Ann., secs. 114-609, 114-613.

114-609.—Regulates rates of insurance carriers. Rates charged to be fair, reasonable and adequate, with due allowance for merit rating, and all risks of the same kind and degree of hazard must be written at same rate by same carrier. Basic rates for policies against liability for compensation to be filed with commissioner for his approval. No policy shall be valid until basic rates have been approved, nor if they have been subsequently disapproved. Plans for modification of basic rates by physical inspection or experience or merit rating to be filed and approved.

Commissioner has power to gather statistics and information. Provision made for arrangements with department of public relations for advice and statistical assistance, taking testimony and reporting. Commissioner authorized to take into consideration income and earnings from any source whatsoever.

114-613.—Relates to assignment of rejected risks. Provides that standard policy shall be used at the rate prescribed by the insurance commissioner.

Idaho

Code 1932,—43-1713.

No regulation of rates for private insurance carriers. Citation given regulates rates for state fund.

Illinois

No regulation of rates for compensation insurance or for insurance under occupational disease act.

Senate Bill 365, Session of 1937, secs. 3a, 7.—Rejected risks.

Section 3a.—Makes reference to "a rate or rates reasonably commensurate with the risk."

Section 7.—Provides that an employer whose risk is assigned under the statutory plan may appeal to the industrial commission on the ground the premium charged is not reasonable or is unfairly discriminatory. On notice and hearing the commission, if it disapproves the premium charged, shall direct the carrier to adjust the premium at a rate or rates found by the commission to be adequate, reasonable and not unfairly discriminatory.

Indiana

Burns' Indiana Statutes 1933, Title 39 c.30 (c. 323, Acts of 1935, am. c.167, laws 1941)

A bureau law, of the compulsory type establishing the Workmen's Compensation Rating Bureau of Indiana of which all carriers are required to be members. The law provides for representation of stock and non-stock carriers on all committees. Provisions are made for organization, management, membership, and apportionment of costs.

The insurance department has powers of supervision, investigation, examination, etc.; but must consult with industrial board in approving classifications, premiums and rates. Board is required to furnish department information and make its records available.

The bureau is required to procure an annual license from the department. Carriers must file with the department written authority permitting the bureau to act in their behalf and an appointment of the insurance commissioner as agent to receive service of process.

The bureau's duties with regard to rates are (1) the establishment of minimum premiums. (2) making of classifications and inspections. (3) application of schedule or merit rating system. (4) making reports to the commissioner.

Rate Regulatory Provisions are:

(1) The department must approve a maximum premium rate for each classification. Carriers may charge a premium rate less than the maximum, but may not charge more unless the department, on showing that the rate is inadequate for a particular risk, shall establish a rate for the risk in excess of the classification rate.

(2) The department must establish maximum limits of expense to be included to in the rates. Every carrier must file its expense loading, which must be approved before becoming effective.

(3) The department must approve a system or schedule or merit rating for use in the state. No system other than the one approved shall be used by bureau members. Effect of using the system shall be given consideration in determining rates.

(4) The department may require survey and report in case of complaints.

(5) The department may withdraw approvals of any rate or classification.

(6) Physical impairment of employees not to be taken into account.

(7) Department may make an experience rate for any employer, and change or revoke same. 30 days notice thereof to be given to bureau.

(8) Department to approve classifications, rules and regulations.

(9) Where doubt exists as to proper classification and maximum rate, risks may be insured subject to establishment of rate and classification by department and bureau.

(10) Payroll audits to show division by classification and be correct as to amount, must be reported to department which has authority to verify same.

Rejected Risks (Secs. 3033-3043).

Premiums to be fixed by bureau. Carriers may make inspections for determining rates for renewals. Renewal rates shall be made in consideration of risk's experience for latest 5 years and most recent bureau inspection. Rates are subject to department's approval.

Iowa

No rate regulation. Iowa is an anti-compact state, and all rates published for Iowa are published as advisory. See Appendix I for Iowa law as to short rate table.

Kansas

General Statutes 1935 sec. 44-560.

(1) Charges for insurance for insurance under act and against liability of employers rejecting act to be fair, reasonable and adequate, with due allowance for merit rating.

(2) 30 days after section becomes effective, carriers must file with commissioner classification of risks and premium rates relating thereto, and system of schedule or merit rating. The commissioner then must hold a hearing and within 60 days approve or issue as fair, reasonable and adequate for all insurance carriers a uniform classification of risks and rates relating thereto, and in his discretion a uniform system of schedule or merit rating.

On hearing the commissioner may subsequently make modifications, or issue new classifications, rates and rating plans.

(3) Carriers must not issue, renew or carry insurance at rates which are less than rates approved or issued. They may however apply approved rating plans using basis rates no less than those approved or issued, but additions or reductions in rates resulting therefrom must be clearly set forth in the policy or endorsement thereto. (As written, this is a minimum law; but deviations upward are in practice not permitted.)

(4) It is specified that act does not affect participation plans or dividends.

(5) Act does not apply to insurance on reciprocal or mutual plan; but such carriers must use classifications approved by the commissioner, and they may not charge rates less than the rates approved by the commissioner.

(6) Rejected risks may be written at a rate promulgated by the bureau and approved by the commissioner, after a hearing and a declaration that an emergency exists.

Kentucky

Carroll's Kentucky Statutes 1936 secs. 4955, 4982-4983 (relating to rates, etc. of Kentucky Employers Insurance Association).

Sec. 4955.—Applies to all insurance carriers, and to both workmen's compensation and employers' liability insurance.

(1) Rates shall be fair, reasonable and adequate, with due allowance for merit rating. All risks of same kind and degree of hazard shall be written at the same rate by the same carrier.

(2) No policy of insurance under this act shall be valid until the rate has been approved by the workmen's compensation board. No carrier shall write any policy or contract until its basic and merit rating plans have been filed with, approved and not subsequently disapproved by the board.

(3) Provision for reporting experience to state insurance commissioner, with authority in commissioner to make inspections of records and examine company officers, etc., under oath.

Louisiana

Dart's Louisiana General Statutes, 1939, secs. 4277 et seq. See also *Administrative Code of 1940, Act 47, Acts of 1940.*

The first named act set up the Louisiana Casualty and Surety Rating Commission, consisting of two appointed members and the secretary of state. This was transferred by the second act to the department of state, in which is set up a board of insurance.

(1) The commission is charged with the duty of determining and filing adequate and reasonable rates to be charged on "all casualty, surety, fidelity, guaranty and bonding risks located in this state." Rates not to be discriminatory. Rules and regulations for application of same to be made by bureau.

Commission is required to take into consideration experience of the several classes of insurers, broad enough and over a period long enough to insure determination of just, adequate and reasonable rates.

(2) Report provided for, showing by customary classifications, and on each class of risks, total premiums received less return premiums and reinsurance, and losses and expenses incurred. This report is to be made annually. Secretary of state has authority to review and examine returns made, examine books and records, etc.

(3) Rates fixed are mandatory, and carriers must write in accordance with rules and regulations adopted by the commission. Any carrier may apply for a hearing on any rates so fixed. Changes ordered by the commission not to be retroactive.

(4) Carriers must file agreements to abide by and comply with established rates, rules and regulations and to pay assessments levied for maintenance of commission.

(5) Any carrier may file an application for a uniform reduction or deviation by schedule from the rates on all risks of any particular class or classes, but reduction shall be uniform on all such classes throughout the state.

The commission may approve same in whole or in part, if it deems such schedule or changes or amendments thereto fair and just to the people of the state, compensatory to the insurers doing business in the state and in line with rates of insurance charged by said insurers in other states, taking into consideration all factors of the cost of insuring. When approved, revised rates constitute authorized rate for carrier.

(6) Administrative process for ordering adjusted rates that are excessive or unfairly discriminatory.

(7) Provision for court review.

(8) Discriminations and rebates prohibited.

(9) Commissions paid by each company to agents to be uniform and equal as to all classes of agents throughout the state.

(10) Commission not to make contracts or agreements as to placing of whole or any part of any insurance.

(11) (Provisions for assessment of carriers for payment of expenses of commissions, and for penalties.)

Maine

Revised Statutes 1930 c.55 sec. 6, II.

Each carrier to file classification of risks and premium rating, and any subsequent proposed classification, none of which shall be effective until approved as adequate for risks to which they apply.

Commissioner may require filing of specific rates, including classifications of risks, experience or other rating information, and may make investigations before giving approval and permitting rates to be promulgated.

Commissioner may withdraw approval and approve a revised classification of risks or rates.

Maryland

Flack's Annotated Code, 1939, Art. 101, secs. 17-19 (relating to rates of state fund).

Section 30, (relating to compensation insurance generally), provides:

(1) That the commissioner shall have authority to determine the adequacy of premium rates.

(2) That the commissioner shall have authority to require insurance companies to establish and maintain adequate rates to cover respective risks to which their policies are applicable.

Massachusetts

General Laws 1932 c.152 secs. 52, 52a (Generally applicable) *53* (applicable to mutual liability insurance companies) *65j, 65k* (Rejected risks).

Sec. 52.—Provides that company insuring compensation shall file with the commissioner of insurance its classification of risks and premiums relating thereto and subsequent proposed classifications and premiums, which shall not take effect until approved by the commissioner as adequate and reasonable for risks to which they apply.

Provision for court review and for withdrawal of approvals.

Sec. 52a.—Requires carriers to file agreement that they will include in their classifications of risks and premiums submitted for approval a proposed premium of insurance for silicosis benefits, which in case of granite industry shall not exceed 6% of payroll.

Sec. 53.—Permits mutual carriers with approval of commissioner to distribute risks into groups and fix premiums, dividends and assessments in accordance with experience of group.

Secs. 65j, 65k.—Provisions similar to those in Illinois law covering rejected risks: providing for company inspections of risks for determination of rates which will be adequate and reasonable, and providing for administrative process on appeal of an employer to the commissioner: for adjusting a premium to a rate found by the commissioner to be adequate, reasonable and not unfairly discriminatory. Rates determined are effective as of date of policy and binding on insurer and employer.

Michigan

Compiled Laws 1929, c.150 secs. 8465-8467 (Rates of state fund) *sec. 12637-12640 (General). (Michigan Sts. Ann., c.150, secs. 17-200 et seq., c.242, secs. 24-511 et seq.)*

Secs. 12637-12640.—Apply to insurers against employers liability and workmen's compensation.

(1) Carriers must file with insurance commissioner of insurance classifications of risks and normal premiums relative thereto with any and all reasonable percentage of allowance above or below normal premium for increased or diminished hazards. The classifications, etc. so filed shall be those used by carrier until changed. (No approval required.)

(2) Carriers not to fix any classification or allowance or charge any premium which is unreasonable or which discriminates unfairly between risks in the application of like charges or credits, or which discriminates unfairly between risks of essentially the same hazards and having substantially the same protection against accident.

(3) Deviations of insurer from classifications, etc. filed with commissioner must be uniform in application to all risks in class for which deviation is made, and no deviation shall be made unless notice thereof is filed with commissioner 15 days before it is in effect.

(4) Administrative procedure before a board consisting of the state banking commissioner, the attorney general and the commsisioner of insurance, for the removal of discriminations. Court appeal with provision for refunding of overcharges provided.

(It will be noted that there are distinct similarities between the above and certain provisions of the Delaware Law. *De facto,* rate regulation exists in Michigan to a degree not indicated by the above.)

Minnesota

Mason's Minnesota Statutes 1927, 1940 Supp., secs. 3612-3634, sec. 4289-1.

Secs. 3612-3634.—Set up a special supervisory board, known as the compensation insurance board, consisting of the commissioner of insurance, a member of the industrial commission and a third appointive member; also a bureau of which all compensation insurance carriers are required to be members.

The board's duties with respect to insurance rates are:

(1) To approve a minimum and adequate and reasonable rate for each classification under which business is written. The board is required to make use of experience and other "helpful information." The board is required to approve a system of schedule merit and experience rating. No system other than the one approved is to be used.

(2) The board may require a survey and report by the bureau of any risk as to which complaint is made. The board may withdraw approvals of a rate or classification on 10 days' notice.

(3) No classification shall be effective until approved by the board. No rule or regulation filed by any insurer or the bureau shall be effective until approved.

(4) Insurance covering part of the risk of self-insured employers must be approved by the board.

(5) When the board is in doubt as to the proper classification or rate for a risk, insurance may be bound, subject to rate and classification to be established hereafter.

(6) The board may review acts of insurers, bureau and agents and make findings and orders requiring compliance with act. Notice, hearing, and court review provided and procedure regulated. (As to payroll audits, see *infra.*)

Bureau Provisions are:

(1) The bureau is a non-partizan bureau with balanced committees, tie votes to be

decided by the board. The act requires all carriers to be members: provides for organization, admissions to membership, charges and services, expenses, obtaining an annual license, rendering annual statements and examinations.

(2) The bureau is required (a) to assign risks to classifications, (b) to inspect and make written surveys of risks rated on schedule and keep same on file, (c) to give information as to classifications, etc. to all insurers at same time, (d) to furnish a copy of written survey with approved classifications and rates to the insurer of record, and on request, and, for a reasonable fee, to other insurers.

(3) The carriers are required to file a copy of every payroll audit with bureau, which checks same as to classification and rate. The board may require the bureau to file with it any such copy, and may verify same by reaudit or other means, and on complaint is required to do so.

(4) Provisions are made for keeping of records, for furnishing to an employer information as to surveys made, and methods of computing charges and credits, for granting hearings and for appeals from such hearings to the board: and for supplying the board with information.

Carriers' duties are:

(1) Carriers must not charge rates which discriminate unfairly between risks or classes, or in the application of like charges or credits in rating plans: or by granting to any employer insurance against other hazards at less than its regular rates.

(2) Carriers are required, except as otherwise ordered, to file their rates with the board, and all changes therein. Such rates are not effective until approved by board, rates filed and approved may not be changed until a substituted rate has been filed at least 15 days and has been approved.

(3) Carriers are required to write insurance at bureau rates approved by the board, with such modifications as are produced by approved rating plans, applied by the bureau. Reductions or increases produced by plans must be set forth in the policy.

Secs. 3634-1 to 3634-4.—Set forth a plan for assigning rejected risks. The initial premium for such risks is fixed by the bureau.

Sec. 4289-1.—Prohibits rates which discriminate against employees because of physical handicaps.

Mississippi

No compensation act.

Missouri

Missouri Sts., Ann., sec. 3327.

Same as Kansas, Sec. 44-560.—In Missouri, however, the rates approved by the superintendent are true minimum rates. It will be recalled that fire rates permit deviations downward but not upward unless approved. The contrary policy in compensation is noteworthy.

Montana

No rate regulation for private insurers. For rates of state fund, see *secs. 2990 et seq.*

Nebraska

Nebraska is an anti-compact state. There are no laws regulating rates, and rates computed for Nebraska are promulgated as advisory. For regulation of rates of mutual liability associations, see *Compiled Statutes 1929, secs. 44-1313, 44-1318, 44-1317.*

Nevada

Monopolistic state fund state. For regulation of rates, see *Compiled Laws 1929, secs. 2702-2703. (Supp. 1931-1941, sec. 2703.)*

New Hampshire

Public Laws, 1926, c.279 secs. 4-9.

Applies to all insurers covering liability under the compensation act.

(1) Every insurer must file with the insurance commissioner its classification of risks and premium rates, together with basic rates and schedule or merit rating plan, if used, none of which shall take effect until approved as just, reasonable and adequate for the risks to which they apply.

(2) Commissioner may withdraw approval of any rate or schedule.

(3) Insurers shall not issue, renew or carry insurance at rates greater, less or different than those approved.

(4) Systems of schedule or merit rating may be applied only by a regional rating board approved by the commissioner.

(5) The adjusted rate must be clearly set forth in the insurance contract or in an endorsement.

(6) Penalty provision.

New Jersey

Revised Statutes 1937, secs. 34: 15-88—34: 15-91.

Applies to all carriers of workmen's compensation and employers' liability.

Commissioner's Duties.—

(1) Carriers are required to file with commissioner of banking and insurance classification of risks and premiums and rules, together with basic rates and system of merit or schedule rating. The same may not be used until approved as reasonable and adequate for the risks to which they respectively apply.

(2) Commissioner may withdraw approval.

(3) Commissioner is authorized to create, organize and supervise a rating bureau.

(4) No carrier to write insurance except in accordance with rates, classifications, rules and rating plans approved by commissioner. Departures from basis rates by use of rating plans to be clearly set forth in insurance contract or endorsement.

Bureau.—

The compensation rating and inspection bureau was originally organized under *Laws 1917 c.178 p. 552.* Its duties are:

(1) To establish and maintain rules, regulations and premium rates and equitably adjust same after inspection.

(2) To adopt means for assuring uniform and accurate audit of payrolls by auditor's appointed by bureau with approval of commissioner or by other approved means.

(3) To furnish to members or to an employer information as to rating, and to encourage accident reduction through approved merit or schedule rating differentials.

All companies are required to be members of bureau; each company is entitled to one representative and one vote. Burau has authority to adopt rules and regulations and to provide income.

The commissioner appoints a special deputy to be chairman of the bureau and all officers, members of committees and employees are subject to his ratification and approval.

Actuary.—

The commissioner is authorized to employ an actuary and assistants; to compel production of books, etc. to enable actuary to compile statistics for determining pure cost of insurance; and to verify payroll records, policies, etc. of any employer.

Information in possession of actuary is available to bureau for use in fixing rates.

New Mexico

No provision: but see Appendix I for filing provisions.

New York

See Appendix I for regulation of rates, and rating bureaus; including special provision for compensation rates.

See *Consolidated Laws c.67 sec. 89* for rates of New York state fund.

North Carolina

Public Laws, 1929 c.120, sec. 73a. (Code 1939, sec. 8081 cccc).

Sec. 73a.—Applies to all carriers of compensation insurance. Rates must be fair, reasonable and adequate, with due allowance for merit rating.

All risks of same kind and degree of hazard must be written at the same rate by the same carrier.

No policy shall be valid until its rate has been approved by the commissioner. No carrier shall write a policy until its basic and merit rating schedules have been, filed with, approved, and not subsequently disapproved by, the commissioner of insurance.

C.279 Public Laws 1931. (Code 1939, secs. 8081 ffff, gggg).

This act establishes the compensation rating and inspection bureau of North Carolina. All carriers of compensation insurance must be members of the bureau. Each member is entitled to one representative and one vote. The governing committee is to be composed of equal representation by participating and non-participating companies.

Provision is made for the adoption of rules, and regulations and for meeting expenses. The commissioner of insurance or the deputy is the presiding officer at meetings of the governing committee, etc. and has authority to resolve the votes.

The commissioner has authority to compel carriers to produce data necessary for bureau's use in compiling and promulgating rates.

The bureau's functions are:

(1) Compilation and promulgation of rates, which must be approved by the commissioner.

(2) To maintain rules and regulations and fix premium rates, and equitably adjust same on inspection.

(3) To furnish on request of employer information as to rating, including method of compilation; and to encourage accident reduction through differentials of approved systems of merit or schedule rating.

(4) To make surveys of risks rated on schedule; but not to describe items or make recommendations for accident prevention.

North Dakota

Monopolistic state fund law. For rates of state fund, see *Compiled Laws of North Dakota, Supp. 1913-1925, sec. 396a.* Also *Laws 1937, c.178, sec. 4* (volunteer firemen).

Ohio

Monopolistic state fund law. For rates of state fund, see *Page's Ohio Central Code, secs. 1465-53, 53a, 1465-54, 1465-55, 1465-63, 1465-104.*

Oklahoma

See Appendix I.

Oregon

Monopolistic state fund law. For rates of state fund, see *Code 1930, secs. 49-1824 to 49-1825, sec. 49-1841. (Oregon Compiled Laws, Ann., 102-1737 to 102-1739, 102-1741 to 102-1747.)*

Pennsylvania

Act. 284, Laws 1921 sec. 654, am., Act No. 256, Laws 1941. (Purdon's Pennsylvania Sts., Tit. 40, sec. 874.)

(1) The classification of risks, underwriting risks, premium rates, and schedule or merit rating plans for compensation insurance are proposed annually by "one or more" rating bureaus, situate within the commonwealth, subject to supervision and examination by the insurance commissioner, and approved by him as adequately equipped to compile rates on an equitable and impartial basis.

(2) Schedule or merit rating plans are to be applied only by the approved bureau or bureaus.

(3) No employer is to be discriminated against or penalized because of physical impairment or any employee or number of dependents.

(4) No classification, rule, rate or rating plan is to take effect without the consent of the insurance commissioner. Approval may be withdrawn if he holds same inadequate or unfairly discriminatory.

(5) Neither state fund nor any other carrier shall issue, renew or carry any policy except in accordance with classifications, rules, rates and rating plans promulgated by bureau for the risk and approved by the commissioner for such insurer.

(6) A provision is newly added for a court appeal from rulings of the commissioner.

Sec. 655. (Provision for filing experience data.)

Rhode Island

No rate regulation.

South Carolina

Act No. 610, Acts of 1936, Act No. 667 Acts of 1937.

A bureau law of the briefest sort. All carriers are required to be members of "a non-partizan rating bureau," with committee membership chosen half by stock companies, half by non-stock companies. The commissioner of insurance has power to resolve ties. The commissioner is required to approve the rate for each classification which rate and classification is to be the same for all insurers. Commissioner is required, in determining rates to use experience and "helpful information." He must also approve a system of merit rating, and no other system may be used.

South Dakota

Code 1939 sec. 31-3411 to 31-3413.—Rates of mutual employers liability associations.

South Dakota formerly had a provision requiring filing of rates with authority in commissioner to call up rates for review and revision: (*Code 1929 Sec. 9465a.*) This does not appear in the code of 1939. There is a provision for reporting experience.

Tennessee

Code 1932 sec. 6894.

Every carrier must file with the commissioner of insurance and banking its classification of risks and premiums relative thereto, and any subsequent proposed classification, together with basic rates and schedule, if one be used, none of which shall take effect until approved by the governor, the secretary of state and the commissioner. Approval may be withdrawn on ground that rate or schedule is inadequate to provide the necessary reserves or unreasonably high.

Texas

Vernon's Texas Statutes 1936. Arts. 4907-4918.

As in case of fire insurance, compensation rates are made by the "State Insurance Commission": or rather by its successor, the Board of Insurance Commissioners (see *Art. 4682a*). The act gives the board authority over policy forms and power to gather statistics. The rate-making functions are:

(1) To make, establish and promulgate classifications of hazards and premiums applicable thereto for insurance under the workmen's compensation law and the longshoremen's and harbor workers' act. Rates promulgated are to be published 15 days before becoming effective.

(2) To assemble necessary data.

(3) To require statements of payroll and incurred losses by classification and other information.

(4) To determine hazards by classes and fix rates of premium adequate to the risks to which they apply and consistent with maintenance of solvency, creation of adequate reserves and a reasonable surplus; to adopt a system of schedule and experience rating.

Rates to be fair, reasonable and not confiscatory to any class of insurance carriers.

Experience to be taken from a territory sufficiently broad and over a period sufficiently long to assure that rates shall be just, reasonable and adequate.

(5) Board may exchange information with other states and consult any national statistical organization. Provision for hearings on grievances.

(6) Act not to prohibit participating plans, but participating dividends on workmen's compensation must be approved by the board.

Utah

Revised Statutes 1933 sec. 43-3-38. Am. c.43, laws of 1941; c.15, laws of 1941, first special session; Senate Bill 23, laws of 1941, second special session.

All companies writing workmen's compensation insurance and occupational disease insurance, and the state insurance fund are subject to rules and regulations of the industrial commission. The commission may provide uniform rates to be charged by such companies, but such rates need not be uniform with rates fixed by state fund.

Secs. 42-2-4-, 42-2-10.—Rates of state fund.

Secs. 42-1-96, 42-2-21.—Provisions for publishing classifications, rates, etc., for distribution to public.

Vermont

Public Laws, 1933, sec. 7037.—Every insurer writing workmen's compensation insurance must file with commissioner its classification of risks and premium rates, together with basic rates and schedule or merit ratings, if used, none of which shall take effect until approved as "reasonable and proper." Approvals may be withdrawn on ground of inadequacy.

Carriers must not write save at approved rates: and approved rating plans must be applied only by a regional rating bureau approved by the commissioner. Modifications due to rating plans must be clearly set forth in the policy or in endorsements.

Sec. 6750 (Rates of mutual workmen's compensation associations).

See also Appendix I for general bureau law, which is by its terms applicable.

Virginia

C.400, Laws of 1918, sec. 75a. (amended) (*Code 1936, sec. 1887* [*75*]).

Rates are to be fair, adequate and reasonable, and all risks of the same kind and degree of hazard shall be written at the same rate by the same carrier. Subject to rules prescribed by the corporation commission, basic rates may be modified by a plan of "physical or schedule, and experience rating."

Companies are required to obtain a permit from the corporation commission.

Prior to obtaining a permit, the company must file schedules showing the rates proposed to be charged. The commission either approves the rates or sets a hearing, at which time it may approve the rates as fair and reasonable, or propose modifications. If the rates are approved, or modifications accepted, the permit is issued.

Changes in approved rates are made upon proceedings as set forth in *Section 4066* of Code. Court appeals are provided.

Provision is made for reports, examinations, gathering information, and cooperation with the industrial commission.

Washington

Monopolistic state fund law.

Remington's Revised Statutes, secs. 7676, 7676-1.—Rating provisions for state fund.

West Virginia

Monopolistic state fund law.

Code 1931. c.23, Art. 2, secs. 4, 5, Art. 3, secs. 1, 2, and Art. 6, sec. 4.—Rating provision for state fund and silicosis fund.

Wisconsin

Wisconsin Statutes 1937, secs. 205.01 to 205.30.

A very elaborate bureau law.

Powers of commissioner.—

(1) The chapter is enforced and administered by the commissioner of insurance, but he is required to consult with the industrial commission in approving classifications, pure premiums or rates, and may consult with it on other matters, and has access to all its records.

(2) The commissioner may authorize any person to attend bureau meetings, hold hearings and make investigations and examinations. The person appointed has all the powers of the commissioner in relation to the particular matter.

(3) The commissioner is required to approve a minimum adequate pure premium for each classification. No company shall use a pure premium less than that approved.

(4) The commissioner is required to establish maximum and minimum limits of expense to be included in the rates. Every company must file a schedule of its expense loading, and any change therein, which must be approved before becoming effective.

(5) The commissioner is required to approve a system of schedule or merit rating. No system except the one approved may be used. Fluctuations caused by use of the system shall be taken into account in approving rates.

(6) The commissioner may require a survey and report by the bureau in case of complaint.

(7) The commissioner may withdraw approvals of rates or classifications on 10 days' notice.

(8) The commissioner may on proper showing make an experience rate for an employer on a uniform plan, and may modify or revoke such rating. 30 days' notice of rate or modification must be given to each rating bureau and to each insurer.

(9) Rates and rating plans must not take into account physical impairment of employees.

(10) Employers who apply or promote oppressive plans for physical examination and rejection of employees or applicants shall forfeit right to experience rating. Procedure and court review provided.

(11) Classifications, rules and regulations may not be effective until approved by commissioner.

(12) Payroll audits by companies must show division by classification, and be correct by amount and division. They must be reported to the industrial commission through the insurance department. The commissioner may, and on complaint shall, verify any payroll audit.

(13) The commissioner has authority to review the acts of any company, bureau or agent and make orders requiring compliance with the provisions of the chapter. Notice, hearing and court review provided.

Bureau.—

Every company is required to be a member of a bureau, maintained in the state. The bureau powers are generally the classification and inspection of the compensation risks, applying rating plans, making reports, assisting the commissioner and the companies in rating matters, and assisting in promoting safety in industry.

Provisions are made for bureau organization, government and membership and for apportioning of expense. Bureau committees are chosen, half by stock companies, half by non-stock companies, with tie votes resolved by the commissioner.

The bureau is required to procure an annual license, and reports annually to the commissioner.

Bureau rating functions are:

(1) To assign risks to classifications approved by commissioner.

(2) To inspect and make a written survey of each risk.

(3) To file with the commissioner its classification of risks, written surveys, etc.

(4) To give information as to classifications, rates, surveys, etc.

(5) To keep a record of its proceedings.

(6) To furnish to an employer on whose risk a survey has been made, full information including charges and credits fixed.

(7) An appeal from bureau decisions to the commissioner is provided.

Company Requirements.—

(1) No company shall make or charge a rate which discriminates unfairly between risks or classes, or which discriminates unfairly between risks in the application of like charges or credits in the schedule or merit rating plan in use.

No company shall discriminate by granting to any employer insurance against other hazards at less than its regular rates for such insurance, or otherwise.

(2) Every company must file with the commissioner its rates, and additions and changes. Rates are not effective until approved. Changes in rates must be filed for at least 15 days, and approved.

(3) Expense loadings and changes therein must be filed and approved.

(4) No company may, in fixing its rates use a pure premium less than that approved, but may use a higher pure premium.

(5) Companies must write at approved rates, with such changes as result from application of system of schedule or merit rating. Changes must be set forth in policy or endorsement.

(6) Companies to make reports to commissioner of insurance provision for filing reports with industrial commission.

(7) Companies to give commissioner information as required.

Rejected Risks.—

Initial premium on rejected risks assigned under *Section 205.30* to be fixed by bureau.

Wyoming

Monopolistic state fund law.

Wyoming Revised Statutes 1931, secs. 124-116, 124-117.—Regulate rates of state fund.

APPENDIX III

RATE REGULATORY LAWS APPLYING TO CASUALTY INSURANCE OTHER THAN WORKMEN'S COMPENSATION *

Alabama

Code 1940 Tit. 28 sec. 331.

Regulates premiums, state surety ins. fund.

Illinois

Insurance Code (1937). (Smith-Hurd Illinois Ann. Sts., c. 73, secs. 1028-1035).

Secs. 416-423.—Applies to motor vehicle insurance rates.

(1) Filings of rates, rating plans, classifications, rules and regulations must be filed prior to issuing policies.

Filings may be made by a bureau, provided (a) that each company shall file a statement under oath, setting forth the name and address of bureau and a statement that company will be bound by bureau filings. (b) schedules filed by bureau shall be verified by oath.

(2) Amendments may be made by filing a verified copy with the director. Changes become effective 15 days after filing unless the director finds an earlier effective date necessary.

(3) Rates, etc. must not be unjust, discriminatory or preferential, provided that special "fleet" rates may be filed. A "fleet" is not less than 5 cars owned by a single assured, and used for business purposes. Must not include motor vehicles owned by employees.

* For laws other than those cited in this Appendix having possible application to casualty insurance, see for states listed below other appendices as indicated.

Alabama, V; Alaska, V; Arizona, V; Arkansas, I; California, V; Colorado, V; Connecticut, V; Delaware, V; Florida, IV; Georgia, V; Hawaii, V; Idaho, V; Illinois, V; Indiana, V; Iowa, V; Kansas, V; Kentucky, V; Louisiana, V; Massachusetts, V; Michigan, II, V; Minnesota, V; Montana, V; Nebraska, V; North Dakota, V; Ohio, V; Pennsylvania, V; Rhode Island, V; South Carolina, V; South Dakota, V; Texas, V; Utah, V; Virginia, V; Washington, V; West Virginia, V; Wisconsin, V.

Indiana

Burns' Indiana Statutes, Ann., sec. 39-4910 (S).—

Applies to motor vehicle insurance against theft, collision, personal injuries and property damage.

(1) Insurers required to file schedules of rates used, classification of each city, etc. together with basis or table rate used therein and all rules and regulations.

(2) Changes to be made by filings 15 days before becoming effective.

(3) Discounts, rebates and deviations forbidden, except: that any insurer may make deviations and percentage discounts based on experience of the "fleet," and the insured, upon the hazard or hazards covered by the policy.

A "fleet policy" is one covering 5 or more automobiles owned by one assured and under a single operating management. Automobiles owned by employers not to be included in "fleet" policy of employer.

(See also Appendix I.)

Iowa

Code 9131 sec. 8666.

Applicable to casualty companies.

Anti-discrimination and anti-rebating law. See Appendix IV.

Sec. 8961.—Short rate table to be prepared by commissioner. Applicable generally.

Kansas

General Statutes 1935, sec. 40-1106.

Applies to accident and health, liability for personal injuries and property damage, fidelity and surety, title, guarantee, credit, elevators, boilers and machinery and miscellaneous.

(a) Rating bureaus to file with commissioner organization data, by-laws, business address, list of members, etc.

(b) Examination provision.

(c) Bureaus and companies must file at request of commissioner rates and other information.

(d) Common expert provision.

(e) Discrimination in rates or rating plans between risks of essentially same hazard prohibited administrative process for removal of discriminations. Discriminations not to be removed by increasing rate unless commissioner finds increase justified.

(f) Anti-rebating provision.

Louisiana

Dart's Louisiana General Statutes. 1939. Am. Administrative Code 1940.

Sec. 4277-1 et seq.—Applies to "All casualty, surety, fidelity, guaranty and bonding risks."

For description, see Appendix II.

Maine

Revised Statutes 1930.

C.60, sec. 30.—Applies to fire and liability insurance.

Prohibits: (a) Rebates of premium or commission. (b) Earnings, profits, dividends, etc. or other consideration not specified in policy. (c) Offer, promise, gift or sale of stocks, bonds, etc., dividends or profits, or thing of value not specified in policy.

C.66, sec. 1101.—Applies to motor liability bonds or motor liability policy.

Prohibits rebates, or premium at rate less than specified in policy.

Maryland

Flack's Annotated Code. Art. 48A. sec. 45.

Applies to fire and miscellaneous insurance.

Prohibits discriminations and rebates. See Appendix I.

Massachusetts

Annotated Laws c.175 sec. 113 B (Am. Laws 1935 c.459).

Applies to motor vehicle liability policies and bonds.

Commissioner required annually to establish, after hearing and investigation fair and reasonable classifications of risk and adequate, just, reasonable and non-discriminatory premium charges. (Rates established in Sept. for ensuing premium year.) Rates to be filed in office and copies sent to companies. Classifications and rates to be used for policies and surety bonds. Provision for publication of notice or hearing.

Provision for making alterations and amendments, for requiring companies to file information, and for issuance of orders to enforce provisions of section.

Court appeal provided.

Laws 1935 C.459 adds provision for establishing rates for insurance of liability for guest occupants under C.90 Sec. 34 A. Parties may, however, contract for higher rate.

Minnesota

Mason's Minnesota Statutes, Supp. 1941 sec. 3766-1.

Applies to automobile liability.

Prohibits: (a) Refusal to issue standard policy of automobile liability insurance. (b) Discrimination in acceptance of risks, rates, premiums, dividends or benefits. (c) Rebates.

Nebraska

Compiled Statutes 1929, sec. 44-1112, 44-1113, 44-114.

Applies to fidelity and surety contracts. Department of trade and commerce required to investigate premium rates. Empowered to fix a maximum schedule of rates of premium upon each and all the different kinds of bonds, contracts, etc.

Powers to summon witnesses and examine papers and documents.

Copies of maximum rates to be sent companies. Charging greater rates prohibited.

New Hampshire

Laws 1929 c.183 secs. 1-4.

Applies to automobile bodily injury and property damage liability insurance.

Companies are required to file classifications, rates and rating plans, with statistical information.

Rates not to be effective until approved by commissioner as adequate, reasonable and non-discriminatory.

Approvals may be withdrawn. Commissioner may enforce rate uniformity.

Laws 1937 c. 161. Policy forms and coverage, financial responsibility law.

New Jersey

Statutes, Ann. 17:28-6.

Applies to automobile insurance.

Distinctions in premium rates and rates of dividends between policies covering financed automobiles and policies covering other automobiles prohibited.

Id; 17:39-1 et seq.—Applies generally.

Anti-rebating and anti-discrimination law. For description, see Appendix I.

New Mexico

Statutes 1929 Supp. 1938.

Sec. 71-162.—Applies generally to casualty insurance.

Rate information to be filed on request of superintendent.

New York

McKinney's Consolidated Laws Book 27 sec. 314.

Applies to participating policies, stock casualty companies.

Classification of policies and method of determining dividends to be filed before dividend is declared. Superintendent must approve dividend, and may withhold approval if he finds dividends not earned or inequitable or unfairly discriminatory to other policy holders.

Id., Sec. 440.—Applies to title insurance corporations.

Must file rate manual, basic schedule of rates and classification of risks, rating plans, rules of commissions and underwriting rules, and changes therein.

Deviations and discriminations forbidden.

Id., Sec. 180-188.—Applicable generally.

Law as to rates and rating organizations. See Appendix I.

Special provision as to rate filings for motor vehicle insurance required by law or surety bonds in lieu thereof. As in case of workmen's compensation, filings must be approved before being made effective.

North Carolina

Code 1939 secs. 2621 (146) et seq. (See also 1941 Supp.).

Applies to automobile liability and property damage insurance.

Companies are required to file classification of risks, rates, rules and rating plans, made by selves or by rating organizations, of which they are members. Filings must be approved before becoming effective. Commissioner required to act on filings within 15 days. Companies required to comply with rates filed.

Commissioner has authority on notice and hearing to order adjustment of rates found to be excessive, unreasonable or discriminatory.

Act not intended to limit method of determining rates or plan of operation or refund of premium of mutuals or reciprocals.

Act creates a bureau, known as North Carolina Automobile Rate Administrative Office, a branch of compensation rating and inspection bureau. The purposes of the bureau are to maintain rules and regulations and fix maximum rates for automobile bodily injury, property damage and collision insurance and adjust same profitably among classifications established by bureau. All carriers writing automobile insurance must be members of bureau.

Bureau committees are to be non-partisan. Commissioner or deputy presides over committee and bureau meetings and has authority to resolve ties.

Id., Secs. 6388 et seq. Applies generally.

Law with respect to rates and rating bureaus. See Appendix I.

Oklahoma

Statutes, Ann. Tit. 36 secs. 131 et seq.

Applies to plate glass insurance and employers' liability.

Rate-regulatory law, see Appendix I.

Oregon

Compiled Laws, Ann. sec. 101-107 (8).

Applies generally.

Requires filing of rating schedules and policy forms.

Prohibits deviation until amended schedules have been filed.

Prohibits discrimination in rates.

Pennsylvania

Purdon's Pennsylvania Statutes Tit. 75 sec. 1273c.

Applies to automobile insurance (under Financial Responsibility Act).

Prohibits: (a) Refusal to issue policy of bond because of rate or color of applicant. (b) Discrimination in point of rate as to such persons.

Id Tit. 40 Sec. 477a (1941 pocket part).—Applies to life, health, accident, personal liability or casualty insurance, except fidelity and surety.

Prohibits discrimination in premiums, rates, terms, conditions or in any manner.

Id., Sec. 855.—Applies to boiler insurance.

Rate must be equal to or exceed 1½ times charges prescribed by city ordinance for inspection of steam boilers.

Tennessee

Williams Code 1934 secs. 6176-6177.

Applies to fire, casualty and indemnity insurance.

Anti-discrimination law with filing provision. See Appendix I.

Texas

Vernon's Texas Statutes, Supp. 1942 Art. 4918b.

Applies to workmen's compensation, motor vehicle and other casualty insurance.

Board of insurance commissioners empowered to make and promulgate special rates and rating plans for national defense projects.

Id., Sec. 5062b.—Applies generally except to life, accident and health.

Rebates by "Local recording agents" and solicitors prohibited.

Vernon's Texas Statutes Art. 4682b. Am. Supp. 1939.—Applies to motor vehicle insurance.

(1) Carriers required to file experience on motor vehicle risks annually.

(2) Commissioner (board of insurance commissioners) empowered to determine and promulgate just and adequate rates of premium for any forms of insurance on motor vehicles, including fleet or other rating plan, and an experience rating plan.

But only one plan for each form of insurance.

Provision for compiling statistics.

Includes all motor vehicles except those running on fixed tracks or rails.

(3) Insurers not to write insurance at rates different from those fixed.

(4) Commissioner may take into consideration experience gathered from a territory and over a time sufficient to ensure rates of terms determined are just, reasonable and adequate, may consult ratemaking associations.

(5) Commissioner may require sworn statements of experience and other information.

(6) (Power to prescribe policy forms.)

(7) Participating dividends to be approved.

(8) Special favors, etc. not specified in contract forbidden. Distribution of profits to be non-discriminatory.

(9) Prohibits: (a) Discriminations in premiums, dividends or benefits. (b) Rebates, special advantage in dividends, etc. or anything of value not specified in policy.

(10) (Rule-making power.)

(11) Provisions for hearings on grievances and for court appeal.

(12) Forms, rates, etc., to remain in effect until new ones approved.

Vermont

Public Laws 1933 sec. 7061.

Applies to fire and casualty insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends or benefits, terms and conditions. (b) Contracts other than as expressed in policy. (c) Rebate of premium, special favor in dividends, or consideration not specified in policy.

(See also Appendix I.)

Virginia

Code 1936 sec. 4326a 1-4326a 6.

Applies to motor vehicle liability and collision insurance.

(1) Carriers must file with state corporation commission their manual, schedule of rates, rating plans, etc. and all deviations, increases or decreases, 30 days prior to becoming effective.

Same not to be effective unless approved within 30 days (except that rates, etc. in force at passage of act may be sued pending approval.) Temporary 90-day approvals may be made and extended.

(2) Hearing on deviations, increases and decreases, not approved within 30 days or disapproved provided. Required that same be fair, reasonable, and non-discriminatory.

(3) Reports by carriers to state corporation commission provided for.

(4) Carriers required to organize rating bureau of which all carriers must be members. (Except that Virginia Insurance Rating Bureau may be designated as administrative bureau in cases where property damage and collision insurance is written in connection with automobile fire and theft.)

Bureau to be located at Richmond.

Washington

See Appendix I for general rate-regulatory provisions.

Wisconsin

Statutes 1939, sec. 204-13.

Applies to suretyship.

(1) Ratemaking organizations required to file articles of agreement, etc., by-laws, business address, membership, and such other information commissioner may require.

(2) Surety companies permitted to employ joint experts.

(3) Discrimination in rates, schedule of rates or charges prohibited. Administrative process for removing discriminations. No discrimination to be removed by increasing rate unless commissioner finds increase justifiable.

(4) Prohibits rebates, discounts or reduction, special favor or advantage, or anything of value not stated in obligation.

Id, Sec. 204-32.—Applies to liability insurance.

(1) Prohibits discrimination or use of discriminatory rating systems.

(2) Prohibits insurance against other hazards at rates lower than regular rates for purpose of evading section.

(3) Prohibits unjust or unreasonable rates.

(4) Requires filing of rates and manuals of risks before they become effective.

(5) Requires filing of rating plans before used. Commissioner empowered to require company to modify plan found to be unfair or discriminatory.

(6) Prohibits use of rate or classification not properly applicable to risk.

(7) Administrative process for correcting rates that are discriminatory or unreasonable. Court review provided.

APPENDIX IV

RATE-REGULATORY LAWS APPLICABLE TO LIFE, ACCIDENT AND HEALTH INSURANCE*

Alabama

Code 1940. Tit. 28, secs. 29-35.

Anti-discrimination and anti-rebating law applicable to life insurance.

Prohibits: (a) Distinctions or discriminations between insurants of some class and equal expectation of life in premiums, rates, dividends or benefit, policy terms and conditions. (b) Making contracts other than as expressed in policy. (c) Giving rebates of premium, special favor or advantage in dividends or other benefits. (d) Giving paid employment, contract for services, or any valuable consideration not expressed in policy.

Arizona

Code 1939 sec. 61-701.

Anti-discrimination and anti-rebating law. Applicable to life insurance.

(1) Prohibits: (a) Distinctions or discriminations, etc. (b) Making contracts other than as expressed in policy. (c) Giving rebates of premium, special favors or advantages in dividends or benefits. (d) Giving valuable considerations or inducements not specified in policy. (e) Giving, selling or purchasing stocks, bonds, etc.

(2) Prohibits acceptance of rebates, etc.

(3) Excepts: (a) Policies of group insurance. (b) Industrial insurance, as to premiums paid at company's office. (c) Non-participating life companies as to bonuses, abatements, etc.

Arkansas

Pope's Digest, 1937, c.92, sec. 7708.

Discrimination by means of "board contracts" prohibited. Applicable to life insurance.

Sec. 7953.—Anti-discrimination and anti-rebating law. Applicable to life insurance.

Prohibits: (a) Distinctions or discriminations, etc. (b) Making contracts otherwise than as expressed in policy. (c) Giving rebates of premium, or anothing of value not specified in contract.

(See also Appendix I.)

California

See Appendix V.

Deering's Insurance Code 1937 sec. 10290.—Applicable to disability contracts. Filing provision, classifications and premium rates. Approval provision.

Does not affect compensation insurance or blanket policies.

Does not affect life insurance contracts except as to supplemental provisions.

Sec. 10401.—Applicable to disability contracts.

Forbids discrimination between insureds of same class.

Colorado

Statutes, Ann. 1935, c.87, sec. 70-74.

Anti-discrimination and anti-rebating. Applicable in part to life companies only, in part to all companies. See Appendix V.

* For laws other than those cited in this Appendix having possible application to life, accident and health insurance, see for states listed below other appendices as indicated.

Alabama, V; Alaska, V; Arizona, V; Georgia, V; Hawaii, V; Idaho, V; Illinois, V; Indiana, V; Iowa, V; Kansas, V; Kentucky, V; Louisiana, V; Massachusetts, V; Michigan, V; Minnesota, V; North Dakota, V; Pennsylvania, V; South Carolina, V; West Virginia, V; Wisconsin, V.

Connecticut

General Statutes 1930.

Sec. 4182.—Discrimination prohibited. Life insurance.

Sec. 4183.—Discrimination between white and colored persons prohibited. Life insurance.

Sec. 4185.—Penalty.

Sec. 4217.—Filing of classification of risks and premium rates. Accident and health insurance.

Sec. 4227.—Discrimination prohibited. Accident and health insurance (for exceptions, 4217-4227, see Sec. 4228).

Delaware

See Appendix V.

District of Columbia

Code, Supp. III sec. 2201.

Applicable to life insurance.

Prohibits stock transactions, etc. or advisory board contracts as inducement to insurance.

Sec. 220m.—Applicable to life insurance.

Prohibits discriminations and rebates.

(a) Discrimination in rates, dividends, terms and conditions.

(b) Contracts other than as expressed in contract.

(c) Giving, selling or purchasing stocks, bonds, etc., dividends accruing thereon or other consideration not specified in policy.

(d) Receipt of rebates.

Exception in favor of industrial life insurance.

Florida

Compiled General Laws 1927 sec. 6225.

Applicable to life companies.

Discriminations and rebates prohibited. Prohibition of rebates probably generally applicable.

(a) Distinctions and discriminations in rates, dividends, other terms and conditions.

(b) Contracts other than as expressed in policy. These apply specifically to life companies.

(c) Rebates of premium, agents commission, dividends, etc. or other valuable consideration not in policy.

(d) Gifts, sales or purchases of stocks, bonds, etc. or dividends thereon, or any other things of value, are apparently general.

Exceptions in favor of non-participating life companies, industrial life companies, group life contracts.

Idaho

Code 1932, sec. 40-1302.

Applicable to life companies.

Prohibits: (a) Discriminations in rates dividends, terms and conditions. (b) Contracts other than as expressed in policy. (c) Gifts, sales or purchases of stock, etc., dividends thereon or valuable considerations not specified in policy. (d) Receipt of rebates.

Sec. 40-1308.—Applicable to accident and health companies. Filing of rates and manual required.

Illinois

Illinois Ins. Code Ann. (Smith-Hurd Illinois Ann. Sts., c.73, secs. 848, 967, 976).

Sec. 236.—Applicable to life companies.

Prohibits discrimination in rates, dividends, terms and conditions.

Sec. 355.—Applicable to accident and health.

Filing of classifications and premium rates required.

Sec. 364.—Applicable to accident and health.

Prohibits discrimination in rates, benefits, terms, conditions, etc.

Iowa

Code 1931 sec. 8666.

Applicable to life, casualty, health or accident insurance.

Prohibits: (a) Discriminations in premium or rate, dividends, benefits, terms or conditions. (b) Contracts not expressed in policy. (c) Rebates of premium, advantage in dividends or other inducement not specified in policy.

Kansas

General Statutes, 1935, sec. 40-1106.

Applies to accident and health.

See Appendix III.

Kentucky

Carroll's Kentucky Statutes, 1936, sec. 656.

Applies to life insurance.

Prohibits: (a) Discriminations in premium, rates, dividends, benefits, terms and conditions. (b) Contracts other than as set forth in policy. (c) Rebates of premium. Special favor in dividends, etc. or consideration other than as specified in policy.

Louisiana

Dart's Louisiana General Statutes, 1939, sec. 4061.

Applies to life insurance.

Prohibits: (a) Discrimination, in premiums or rates, terms and conditions. (b) Contracts other than as expressed in policy. (c) Rebate of premium, advantage in dividend, or consideration not expressed in policy.

Sec. 4100.—Applies to life insurance.

Requires companies to give to domestic policy holders benefit or all legislative enactments in state of domicile.

Sec. 4101.—Applies to life insurance.

Discrimination through agency appointments prohibited.

Maine

Revised Statutes 1930 c.66 sec. 137.

Applies to life insurance.

Prohibits: (a) Discrimination in amount payable on policy in premiums or rates, dividends or other benefits, or terms and conditions. (b) Rebates of premium or agents' commission. Allowance of dividends, etc., or other consideration not specified in policy. (c) Gift, etc. of stocks, bonds, etc., dividends or profits thereon or other things of value, except as specified in policy c.138. Acceptance of rebates prohibited. Applicable to life, accident and health insurance.

Maryland

Flack's Annotated Code, Art. 48A sec. 44.

Applies to life and accident insurance.

Prohibits: (a) Discrimination in premiums, rates, terms and conditions. (b) Rebates of premium. (c) Receipt of rebates, etc. (d) Rebates through agents' license.

Exceptions in favor of industrial insurance and non-participating life.

Sec. 120.—Applies to life insurance.

Company writing policies at inadequate rates may be ordered to cease doing so.

Massachusetts

Annotated Laws c.174. sec. 108.

Applies to accident and health insurance. Filing of table of rates and manual of risks provided.

Secs. 120-122.—Applies to life insurance.

Prohibits: (a) Discrimination in amount, premiums, rates, dividends or terms and conditions. (b) Agreements other than as expressed in policy. (c) Gifts, sales, purchases, etc., or stocks, bonds, etc., or dividends or profits, as inducement to insurance. (d) Discrimination between white and colored persons.

Michigan

Statutes Ann. c.242 sec. 24-275.

Applies to accident and health insurance. Requires filing of classification of risks and premium rates.

Sec. 24-293.—Applies to life insurance.

Discrimination between white and colored risks prohibited.

Minnesota

Mason's Minnesota Statutes 1927, 1940 Supp. sec. 3415.

Applies to accident and health insurance.

Filing of classification of risks and premium rates required.

Sec. 3425.—Applies to accident and health.

Discriminations in rates, benefits, terms, and conditions prohibited.

Sec. 3376-3377.—Applies to life insurance.

Prohibits: (a) Discrimination in acceptance of risks on account of race. (b) Discrimination in premiums, rates, dividends, terms and conditions. (c) Contracts other than as expressed in the policy. (d) Rebates, special favor or advantage in dividends, etc., or other consideration not specified in policy.

Mississippi

Code 1930 sec. 5171.

Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends, terms and conditions. (b) Rebates, special favor in dividends, etc., or valuable consideration not specified in policy.

Missouri

Statutes Ann., c.37 sec. 5729.

Applies to life insurance.

Prohibits: (a) Discriminations in premiums, rates, dividends, terms and conditions. (b) Contracts other than as expressed in policy. (c) Rebates of premium, special favor or advantage in dividends, etc. Paid employment or contract for services, or any consideration not specified in policy. (d) Gift, sale or purchase of stocks, bonds, etc. dividends or profits thereon or anything of value.

Sec. 5777.—Applies to life insurance on stipulated premium plan.

Prohibits: Discrimination in premiums, dividends, etc.

Montana

Revised Codes, 1935, sec. 6286, 6287.

Applies to life companies.

Prohibits: (a) Discrimination in premiums, rates, dividends, etc., terms and conditions. (b) Contracts other than as expressed in policy. (c) Rebate of premium special favor or advantage in dividends, etc. (d) Gift, sale or purchase of stocks, bonds, etc., dividends thereon or anything of value not specified in policy.

Prohibits issue of stock, securities, special or advisory board contracts, etc., as inducements.

Nebraska

Compiled Statutes 1929, sec. 44-1107.

Applies to life companies.

Prohibits: (a) Discrimination in premiums, rates, dividends, terms or conditions. (b) Contracts other than as expressed in policy. (c) Issuance of stock, etc., special advisory board contracts or other contracts as inducements. (d) Gifts or sales, etc., of stocks, bonds, etc., as inducement.

New Jersey

Statutes, Ann. sec. 17: 34-44 et seq.

Applies to life insurance.

Prohibits: (a) Discriminations between white and colored persons. (b) Discriminations in premiums, rates, dividends, etc., terms or conditions. (c) Contracts other than as expressed in policy. (d) Rebates of premium, special favor or advantage in dividend, etc., or any consideration not specified in contract. (e) In case of companies issuing both participating and non-participating insurance, distinctions in commission or agents compensation, based on the participating character of the policy.

Sec. 17: 35-26.—Applies to accident insurance.

Filing of classification of risks and premium rates required.

Sec. 17: 38-1.—Applies to accident and health insurance.

Filing of classification of risks and premium rates required.

Sec. 17: 38-11.—Applies to accident and health insurance.

Prohibits discrimination in premiums, rates, benefits, terms, conditions or in any other manner.

For exceptions, Sec. 17: 38-12.

Sec. 17: 48-9.—Applies to Hospital Service Corporations.

Rates must be filed and are subject to disapproval of superintendent, if excessive, inadequate or discriminatory.

New Mexico

Statutes 1929 Supp. 1938 sec. 71-162.

Applies to life, accident, and health insurance.

Requires filing of rates, rate books and agents' instructions. Superintendent may within 30 days disapprove a policy form if rates and instructions are contrary to laws of state. (See Appendix V.)

New York

McKinney's Consolidated Laws Book 27. sec. 162.

Applies to group accident and health.

Requires filing of schedule of premium rates.

Sec. 164.—Applies to accident and health insurance.

Requires filing of rate manual showing rates, rules and classifications of risks.

Sec. 209.—Applies to life, accident and health insurance.

Prohibits as to life companies:

(a) Discrimination in amount or payment or return of premiums or rates, or in dividends or other benefits, or any of terms or conditions thereof.

(b) Contracts other than as expressed in policy.

(c) Gifts, sales or purchases of stocks, bonds, etc., dividends or profits thereon, or any valuable consideration or inducement not specified in policy.

(d) Receipt of rebates.

Provision as to industrial life insurance. Giving medical examinations and diagnosis and nursing services. Prohibits as to accident and health companies:

(a) Discrimination in premiums, policy fees or rates, in benefits, or in terms and conditions or in any other manner.

Prohibits as to life companies:

Discriminations between white and colored persons.

(a) In premiums or rates.

(b) Between persons of same age, sex, general condition of health and prospect of longevity.

(c) Requiring rebate or discount on death benefit or stipulate in advance for acceptance by persons at interest of sum less than full value, save as in case of white persons.

(d) Companies not to reject application, refuse to issue policy, or make reduction in rate of fees and commissions of agents solely because applicant is wholly or partly of African Descent.

Sec. 210.—Applies to life companies.

Prohibits discriminations as to brokers.

Sec. 255.—Applies to non-profit hospital service corporations.

Requires filing of rates with superintendent and obtaining his approval. Rates may be disapproved if excessive, inadequate or unfairly discriminatory.

North Carolina

Code 1939 secs. 6388 et seq.

Applies to accident and health insurance.

General provisions as to rates and rating organizations. See Appendix I.

Sec. 6458.—Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends, terms and conditions. (b) Contracts other than as expressed in policy. (c) Rebates of premium, special favor, dividends, any consideration or inducement not specified in policy. (d) Any stocks, bonds, etc., dividends or profits thereon, or anything of value not specified in policy.

Sec. 6477.—Applies to accident and health insurance.

Requires classification of risks and premium rates to be filed.

Sec. 6488.—Applies to accident and health insurance.

Prohibits discrimination in premiums, rates, benefits, terms, conditions or in any other manner. (For exceptions, see Sec. 6489.)

North Dakota

Compiled Laws 1913 Supp. 1925.

Sec. 4855.—Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends, etc., terms and conditions. (b) Contracts other than as expressed in policy. (c) Rebates of premium, special favor or advantage in dividends, etc., paid employment or contract for service or any consideration not specified in policy. (d) Gift, sale or purchase as inducement of stocks, bonds, etc., dividends or profits thereon, or anything of value not specified in policy.

Ohio

Page's Code sec. 9401.

Applies to life insurance.

Discrimination between white and colored persons prohibited.

Sec. 9403.—Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends or other benefits, terms or conditions. (b) Contracts other than as expressed in the policy. (c) Rebates of premium, special advantage in dividends or benefits, date of policy or date of issue or any valuable consideration or inducement. (d) Gift, sale or purchase of stocks, bonds, etc., dividends or profits to accrue thereon, paid employment or contract for service or anything of value. (e) Separate agreements, promising to secure loan or contract for service. (f) Receipt of rebates.

Exceptions in favor of non-participating insurance, industrial insurance.

Oklahoma

Statutes Annotated, Tit. 36—sec. 195.

Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends or other benefits, terms or conditions. (b) Contracts, other than as expressed in policy. (c) Rebates of premium, special advantage in dividends or, any paid employment or contract for service or any consideration not specified in policy. (d) Gift, sale or purchase of stocks, bonds, etc., dividends or profits thereon or anything of value.

Sec. 196.—Applies to life insurance.

Prohibits receipt of rebates, etc.

Oregon

Compiled Laws, Ann., sec. 101-107, (8).

Applies generally.

Requires filing of policy forms and schedules or rates.

Forbids deviation until corrected rates are filed.

Forbids discrimination in rates.

Sec. 101-510.—Applies to life companies.

Prohibits: (a) Discrimination in premiums, rates, dividends or other benefits, terms or conditions. (b) Contracts, except as expressed in policy. (c) Rebates of premium, special advantage in dividends or benefits or any consideration not specified in policy. (d) Gift, sale or purchase as inducements of stocks, bonds, etc., dividends or profits thereon, or anything of value not specified in policy. (e) Receipts of rebates, etc.

Exception in favor of non-participating life companies, and industrial life insurance.

Sec. 101-803.—Applies to accident and health insurance.

Requires filing of table or manual risks.

Pennsylvania

Purdon's Pennsylvania Statutes, Tit. 40 sec. 477a. (Cumulative Pocket Part.)

Applies to life, accident and health, etc.

Prohibits discriminations in premiums, rates, terms, conditions or in any other way.

Sec. 751.—Applies to accident and health insurance.

Filing of classifications and premium rates required.

Sec. 761.—Applies to accident and health insurance.

Prohibits discriminations in premiums, rates, benefits, terms, conditions or in any other manner.

Rhode Island

General Laws 1938 c.153 sec. 6.

Applies to life insurance.

(Prohibits discrimination along lines of laws forbidding discriminations between white and colored risks.)

Sec. 9.—Applies to life insurance.

Agents forbidden to make distinction as to time and manner of collecting dues upon policies.

Sec. 11.—Applies to life insurance.

Prohibits: (a) Contracts of insurance other than as expressed in policy. (b) Gifts, sales, purchases, etc. (c) Receipt of rebates, etc.

Exception as to industrial life.

South Dakota

Code 1939. sec. 31: 1512.

Applies to accident and health insurance.

Filing of classifications and rates required.

Sec. 31: 1515.—Applies to life, accident and health insurance.

Filing of classifications and rates required.

Prohibits: (a) Discrimination in premium or rates, dividends or benefits, terms, or conditions. (b) Contracts other than as expressed in policy. (c) Rebates of premium, advantage in dividends, etc., paid employment, or contract of service or consideration not specified in policy. (d) Gifts, sales, purchases, etc.

Tennessee

Williams' Code 1934 sec. 6132.

Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends, benefits, terms or conditions. (b) Contracts other than as expressed in policy. (c) Rebates of premium, special favor or advantage in dividends, etc., or consideration not specified in policy.

Texas

See Appendix V.

Utah

See Appendix V. For anti-discrimination and anti-rebating provision.

Revised Statutes, 1933, sec. 43-3-34.—Applies to life companies.

Prohibits issuance of stock, special or advisory board contracts, etc.

Vermont

Public Laws 1933 sec. 7010.

Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends or benefits, terms and conditions. (b) Contracts other than as expressed in policy. (c) Rebates of premium, special favor in dividends, etc., or consideration not specified in policy.

Sec. 7072.—Applies to accident and health insurance.

Requires filing of classifications and rates.

Sec. 7082.—Applies to accident and health insurance.

Prohibits discrimination in premiums, rates, benefits, terms or conditions.

Virginia

See Appendix V.

Code 1936, sec. 4315.—Applies to accident and health insurance.

Requires filing of manual of risks and table of rates.

Washington

Remington's Revised Statutes, sec. 7226.

Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends or benefits, terms and conditions. (b) Rebates of premium, special favor in dividends, etc., or consideration not specified in policy. (c) Issue of stock, special or advisory board contracts, etc.

Sec. 7232.—Applies to accident and health insurance.

Usual filing provision.

West Virginia

See Appendix V.

Code 1937 sec. 3472 (9).—Applies to accident and health insurance.

Usual filing provision.

Sec. 3472 (18).—Applies to accident and health insurance.

Common anti-discrimination provision.

Wisconsin

Statutes 1937 sec. 204.31.

Applies to accident and health.

Usual filing provision.

Wyoming

Revised Statutes 1931 sec. 57-601.

Applies to accident and health insurance.

Usual filing provision.

Sec. 57-611.—Applies to accident and health insurance.

Usual anti-discrimination provision.

Sec. 57-801.—Applies to life insurance.

Prohibits: (a) Discrimination in premiums, rates, dividends or benefits, terms, and conditions. (b) Contracts other than as expressed in the policy. (c) Rebate of premium, special favor in dividends or benefits, paid employment or contract for services, or any consideration not specified in policy. (d) Gifts, sales, purchases, etc.

APPENDIX V

ANTI-DISCRIMINATION, ANTI-REBATING AND MISCELLANEOUS, NOT INCLUDED IN APPENDICES I-IV

Alabama

Code 1940 Tit. 28 sec. 17.

Anti-discrimination and anti-rebating. Applies generally.

Sec. 75.—Anti-rebating. Applies generally.

Alaska

Compiled Laws, 1933, secs. 1856-1859.

Applies generally.

Prohibits: (a) Rebates. (b) Fees or perquisites in addition to premium. Requires reports by agents to companies of exact consideration written in policy.

Arizona

Code 1939 sec. 61-331.

Prohibits rebates, etc. Applies generally.

Sec. 61-341.—Applies generally.

Prohibits fees, charges or perquisites in addition to premium.

Arkansas

(See Appendix I.)

California

Deering's Insurance Code 1937 secs. 750-767.

Applies generally.

Prohibits rebates, etc.

An elaborate provision covering rebates of premium rebates of commission, considerations not specified in policy, receipt of rebates, allowance of credit without interest, splitting commissions, misrepresentations of payroll by employer, acceptance of false payroll statements by insurer, agency appointments as means of rebating.

There is a notable list of exceptions:

(a) Participating dividends.

(b) Payment of commissions.

(c) Marine customary additional allowance.

(d) Payments by one insurer to another insurer, agent, etc., of commission on policy insuring payee.

(e) Bonuses or abatements of premium by non-participating life companies.

(f) Dividends on participating life policies.

(g) Discounts for advance payments, industrial life policies.

(h) Special compensation by life companies agreed to in contracts now in force.

(i) Group life contracts.

Sec. 1420.—Discrimination in dividends forbidden. Applicable to reciprocal insurers.

Sec. 1490.—Rebates forbidden. Applicable to reciprocal insurers.

Colorado

Statutes, Ann., c.87, secs. 70-74.

Applies generally, except as noted.

Prohibits discriminations (life companies) rebates, etc. (all companies).

The anti-rebating section prohibits: (a) Making contract of insurance otherwise than as expressed in policy. (b) (Except in case of charitable, religious or educational corporations) Rebates of premium, special favors in dividends, any paid appointment, or contract of service, or any valuable consideration not specified in policy. (c) Gifts, sales or purchase of stocks, bonds, dividends thereon or anything of value not included in policy. (d) Issue of agency company stock. Advisory board contracts, etc. (e) Rebates by agents prohibited.

Connecticut

General Statutes, 1930 sec. 4144.

Applies generally.

Rebates, etc., forbidden.

Prohibits: (a) Rebates of premium, special favor or advantage in dividends, etc., or valuable consideration or inducement not specified in policy. (b) Acceptance of rebates, etc.

Delaware

Revised Code, 1935, c.20. sec. 485.

Applies generally.

Rebates and discriminations prohibited.

Prohibits: (a) Distinctions and discriminations in rates, dividends or other benefits or policy terms. (b) Making of contracts other than as expressed in policy. (c) Rebates of premium, special favors or advantages in dividends, or any valuable consideration not specified in policy. (d) Gifts, sales or purchases of stocks, bonds, etc., or dividends thereon, or anything of value not specified in policy. (e) Division of commissions with anyone except licensed agent or broker. (f) Receiving rebates, etc. (g) Exceptions in favor of non-participating life companies, industrial life companies.

Florida

See Appendix IV.

Georgia

Code, Ann. sec. 56-218.

Applies generally.

Prohibits rebates of premium, and sale of "special contracts," "board contracts," or any other form of policy whereby discrimination is allowed.

Sec. 56-9903.—Giving rebate, making discriminatory contract or receiving benefit thereof declared misdemeanor.

Hawaii

Revised Laws 1935 sec. 6808.

Applies generally.

Prohibits contracts outside policy and giving and receiving of rebates, etc.

Idaho

Code 1932 sec. 40-1107.

Applies generally.

Prohibits: (a) Rebates of premium or of agent's commission. (b) Offering or giving inducements not provided in contract. (c) Gifts, purchases and sales of stocks, bonds, etc., dividends thereon or anything of value. (d) Receipt of rebates.

Exceptions in favor of non-participating life companies, industrial life, group life.

Sec. 40-1112.—Applies generally.

Fees, etc., not specified in policy prohibited.

Illinois

Insurance Code, Ann. (Act June 29, 1937). (Smith-Hurd Illinois Ann. Sts., c.73 secs. 763-765.)

Sec. 151-153.—Applies generally.

Prohibits: (a) Rebates of premium, etc., agent's commissions, dividends, special advantages, paid employment or contract or service or other valuable inducement not specified in policy. (b) Gifts, sales or purchases of stocks, etc., dividends thereon or any inducement not specified in policy.

Exceptions as to non-participating life, industrial policies, premium notes.

(c) Acceptance of rebates.

Indiana

Burns' Indiana Statutes, Ann., sec. 39-5030.

Applies generally.

Prohibits: (a) Rebates of premium, agents' commission, dividends or special advantages or other inducement not specified in policy. (b) Offer, gift, sell or purchase of stocks, bonds, etc., or dividends thereon or anything of value not specified in policy.

Exception as to industrial life.

(c) Receipt of rebates.

Iowa

Code 1931, sec. 8624.

Applies generally.

Prohibits sale of stock, advisory board contracts, etc., as inducement to insurance.

Sec. 8961.—Short rate table provision.

Companies not to demand or collect greater sum than provided in commissioner's table.

Kansas

General Sts., 1935, sec. 40-232.

Applies generally.

Prohibits sale of stock or special inducements, in connection with selling insurance.

Kentucky

Carroll's Kentucky Statutes 1936, sec. 762 a.19.

Applies generally.

Prohibits: (a) Rebates of premium, special advantage in dividends, etc., and considerations not specified in policy. (b) Gifts, sales or purchases of anything of value not specified in policy. (c) (Provision as to receiving rebates.)

Louisiana

Dart's Louisiana General Statutes, 1939.

Sec. 4260.—Applies generally.

Prohibits rebates. Specifically prohibits rebates on "open" policies.

Sec. 4278. 17.—(cumulative supplement) Applies generally.

Prohibits rebates by agents.

Massachusetts

Annotated Laws, c. 175 sec. 182-184.

Applies generally.

Prohibits: (a) Any valuable consideration not specified in policy or special favor or advantage. (b) Gifts, sales or of anything of value not specified in policy. (c) Giving, selling, negotiating, etc., any policy of workmen's compensation insurance, or any motor vehicle liability bond or policy at rates different from those established by commissioner. (d) Rebates. (e) Acceptance of rebates.

Michigan

Statutes, Ann., c.242 sec. 24-170.

Applies generally.

Prohibits: (a) Rebates of premium or agents' commission. Dividends or valuable consideration not specified in policy. (b) Gift, sales, purchases, etc., of stocks, bonds, etc. Dividends or profits thereon or anything of value not specified in policy.

Sec. 24-173.—Applies generally.

Receipt of rebates prohibited.

Minnesota

Mason's Minnesota Statutes 1927.

Sec. 3766.—Applies generally.

Prohibits: (a) Discriminations in premium. (b) Rebates of premium special advantage in dividends, etc., or consideration not specified in policy. (c) Gifts, sales, purchases, etc., of stocks, bonds, etc., or anything of value not specified in policy. (d) Receiving rebates.

Montana

Revised Codes 1935 sec. 6121.

Applies generally.

Prohibits: (a) Discrimination in premiums, rates, dividends, terms and conditions. (b) Contracts other than as expressed in policy. (c) Rebate of premium, special favor or advantage in dividends, etc., or any consideration not specified in contract.

Nebraska

Compiled Statutes 1929 sec. 44-339.

Applies generally.

Prohibits: fees, charges, etc., not specified in policy.

Sec. 44-1105.—Applies generally.

Prohibits: (a) Rebates of premium or commissions, dividends or, paid employment or contract of service or any consideration not specified in policy. (b) Gifts, sales or purchases of stocks, bonds, or, dividends, etc., thereon, or other thing of value not specified in policy. (c) Receipt of rebates, etc.

New Jersey

Statutes, Annotated. sec. 17-29-1 et seq.

Applies generally (except life, marine, etc.)

Anti-discrimination and anti-rebating law. For description, see Appendix I.

New Mexico

Statutes 1929. Supp. 1938. sec. 71-148.

Applies generally.

Prohibits (a) Discrimination in premiums or rates. (b) Variation in favor of any insured in premiums or rates from those filed with superintendent does not prohibit filing or use of non-discriminatory rating plans. (c) Contracts of insurance other than as expressed in policy. (d) Rebates, special advantage of any kind not expressed in policy. (e) Gifts, sales, purchases, etc., of stocks, bonds, etc., dividends thereon, or anything of value not specified in policy.

Sec. 71-150.—Applies generally.

Receipt of rebates, etc., prohibited.

Sec. 71-162.—Applies generally.

Filing provision. See Appendix I.

Sec. 71-216.—Hail insurance.

Forbids discrimination.

New York

McKinney's Consolidated Laws, Book 27, sec. 129.

Applies generally.

Brokers not to charge or receive any greater sum than premium fixed by insurer, unless charge is based on written memorandum signed by party to be charged and specifying compensation.

See Appendix I.

North Dakota

Compiled Laws 1913. Supp. 1925.

Sec. 4854 a2.—Applies generally.

Prohibits (for agents and solicitors): (a) Rebate of premium, commission, dividends, etc., special advantage in date of policy or age of issue, any paid employment or contract of service or other consideration not specified in policy contract. (b) Gift, sale, or purchase of stocks, bonds, etc., dividends or profits thereon, or anything of value as inducement to insurance.

Sec. 4854 a3.—Applies generally.

Prohibits receipt of rebates.

Ohio

Page's Ohio General Code sec. 9589-1.

Applies to companies other than life.

Prohibits: (a) Rebate of premium, special advantage in dividend, paid employment or contract for services, or any valuable consideration not specified in policy. (b) Gift, sale or purchase as inducements, or stock, bonds, etc.

Oregon

Compiled Laws Ann. sec. 101-107 (8).

Applies generally (except marine insurance).

Filing, non-deviation and non-discrimination provisions. See Appendix I.

Id, Sec. 1-1-113.—Applies generally except to life insurance.

Requires policy to bear on face true statement of premium.

Prohibits: (a) Rebate of premium or agents' commission, or dividends, etc., or other valuable consideration not specified in policy. (b) Gift, sale or purchase, as inducement, of stocks, bonds, etc., dividends or profits thereon, or anything of value not specified in policy. (c) Receipt of rebates.

Pennsylvania

Purdon's Pennsylvania Statutes Tit. 40 secs. 275-276.

Applies generally.

Prohibits, as to agents, solicitors and brokers: (a) Rebate of premium or commission, dividends, etc., special favor in date of policy or age of issue paid employment or contract of service, or other consideration not specified in policy. (b) Gifts, sales, purchases, etc.

Prohibits as to insured, receipt of rebates, etc.

Sec. 471.—Applies generally.

Substantially same provisions as Sec. 275, but applies to companies, officers, and members.

Exception as to industrial life.

Rhode Island

General Laws 1938 c.157 sec. 1.

Applies to insurance other than life.

Prohibits: (a) Contract other than expressed in policy. (b) Rebates of premium, special advantage in dividends, etc., or any consideration not specified in policy. (c) Gifts, sales, purchases, etc. (d) Rebates by brokers.

South Carolina

Code 1932. sec. 7994.

Applies generally.

Prohibits: (a) Rebates of premium, agent's commission, dividends, etc., or consideration (b) Contracts other than as expressed in policy. (c) Rebate of premium, special favor in dividends, paid employment or contract of service, or any consideration not specified in policy. (d) Gifts, sales, purchases, etc.

South Dakota

Code 1938. sec. 31-1103. (4), (5).

Applies generally.

Prohibits: (a) Rebates of premium agent's commission, dividends, etc., or consideration not specified in policy. (b) Gifts, sales, purchases, etc.

Tennessee

Williams' Code 1934 sec. 6133.

Applies generally.

Prohibits rebate of premium, special advantage in dividends, etc., or consideration not specified in policy.

Texas

Vernon's Texas Statutes, Supp. 1942. Art. 5062 B.

Applies to all insurance except life, accident and health.

Prohibits rebates, etc., by local recording agents and solicitors.

1d, Art. 5053.—Applies generally.

Prohibits: (a) Discrimination in premiums, rates, dividends or benefits. (b) Contracts other than as expressed in policy. (c) Rebates of premiums, special advantage in dividends, paid employment or contract for service, anything of value or consideration not specified in policy. (d) Gifts, sales, purchases, etc. (e) Special or board contracts.

Applies generally.

Utah

Revised Statutes 1933 sec. 43-3-32.

Prohibits receipt of rebates, etc.

1d, Sec. 43-3-33.—Applies generally except as indicated.

Prohibits: (a) Discrimination in premiums, rates, dividends or benefits, terms and conditions (applicable to life insurance). (b) Contracts, other than as expressed in policy. (c) Rebates of premium, special favor in dividends or benefits, paid employment or contract for services, or consideration not specified in policy. (d) Gifts, sales purchases, etc.

Virginia

Code 1936 sec. 4221 (b), (c).—(b) applies to life (c) applies generally.

Prohibits: (a) Discriminations by life company in premium, dividends, etc., issuance of policies at age lower than actual age prohibited. (b) (Generally applicable) contracts other than as expressed in policy. (c) (Generally applicable) rebates of premium, special favor in dividends, or inducement not specified in policy.

Exception in favor of life companies as to industrial insurance or policies on lives of own employees.

Washington

Remington's Revised Statutes sec. 7077.

Applies generally.

Prohibits: (a) Rebates of premium, commissions, dividends, etc., or consideration not specified in policy. (b) Gifts, sales, purchases, etc. (c) Receipt of rebates, etc.

West Virginia

Code 1937, secs. 3299-3302.

Applies part to life insurance, part generally.

Prohibits: (a) Discriminations in premiums, rates, dividends, benefits, terms and conditions (life companies). (b) Contracts other than as expressed in policy (life companies). (c) Unfair discrimination between risks of essentially same hazard, with administrative process for removing discrimination (all companies). (d) Contracts other than as expressed in policy (liability, casualty, accident or "hazard"). (e) Rebates, etc. (all companies). (f) Certain loan transactions (all companies). (g) Acceptance of rebates, etc.

Exceptions in favor of non-participating life insurance, industrial life insurance, group insurance, and insurance through an agency in which insured is interested.

Wisconsin

Wisconsin Statutes, 1937, sec. 201-60.

Applies generally.

Prohibits membership in or contributions to a rating bureau unless it serves without discrimination all carriers who apply, and unless it files with the commissioner its charter, by-laws, etc.

Sec. 201-53.—Applies generally.

Prohibits: (a) Contracts other than as expressed in policy. (b) Rebates, etc. (c) Contracts for service, sales of stock, etc.

VOLUNTARY PLANS FOR GRANTING AUTOMOBILE BODILY INJURY AND PROPERTY DAMAGE LIABILITY INSURANCE TO RISKS UNABLE TO SECURE IT FOR THEMSELVES

BY

CORNELIUS G. VANDERFEEN

Despite the very considerable publicity afforded Automobile Voluntary Assigned Risk Plans now in effect in ten states, at the times that they were initiated, widespread misinformation respecting the purposes, scope and functioning of these plans seems to exist. This misinformation or misunderstanding is general not only on the part of the public and the insurance authorities of some states, but also on the part of producers and agents, and even the insurance carriers themselves.

The primary purpose of this paper is to cite briefly the history, scope and development of Automobile Voluntary Assigned Risk Plans.

First, and most important, it should be thoroughly understood that Automobile Voluntary Assigned Risk Plans for affording coverage to eligible risks unable to secure it for themselves are not "pools"; that is, insurance carriers subscribing thereto, accept assigned risks for their own account— and the hazard assumed for each such risk by each subscribing carrier is that carrier's alone. The experience of risks assigned under the Plan is not "pooled"—that is, is not shared by all subscribers of the various Plans.

The administrative office of each Plan functions solely as a central medium or agency whereto applicants for coverage forward the necessary papers. The application form and accompanying papers are reviewed to insure their completeness according to the provision of the Plan and are then assigned in an orderly manner to subscribing carriers.

The necessity for the considered adoption of such plans for automobile bodily injury and property damage liability coverage to eligible risks, arose from several developing conditions of the casualty business—but arose primarily due to the "tightening-up" and enforcement of the provisions of state financial responsibility laws requiring the filing of proof of financial responsibility by owners and operators in order that they might continue to own or operate a motor vehicle after the occurrence of certain accidents or convictions arising therefrom. In addition, in some few States, carriers have been confronted with the necessity of adopting some means whereby any risk in good faith entitled to insurance but unable to secure it for itself could be granted coverage—even although the risk in question was not required to file evidence of financial responsibility. These complaints arose

Mr. VanderFeen submitted this paper on invitation.

from varying causes, due to physical disability of the owner or operator, occupation, or age of applicant, etc.

Despite the highly competitive situation for automobile insurance existent in all States by the many private carriers—varying in number from seventy to over one hundred and fifty in various States—an increasing number of complaints were being made to insurance department officials by individuals and owners who believed they were in good faith entitled to obtain insurance and in most instances were required to file evidence of financial responsibility, but who could not obtain insurance coverage for themselves on a voluntary basis from licensed private carriers.

The only procedure available in such instances was for the insurance department to present each complaint to one or more of the larger carriers operating in the State, or to the chief official of any organized group of carriers, with a plea that coverage be granted by some carrier in the individual instance cited. Obviously this method was most unsatisfactory and unfair to all parties concerned. This situation led to the conclusion that practical relief could only be obtained by enactment of legislation whereby the state itself would set up machinery to furnish insurance to members of the public who might otherwise be unable to obtain insurance from private carriers, or might mandatorily require carriers to write all applicants and perhaps pool their experience. Both such alternatives, and most other alternatives were obviously undesirable to private insurance carriers.

In order to solve an analogous problem as respects risks required to carry workmen's compensation coverage, carriers in many states had developed and put into effect so-called "Voluntary Assigned Risk Plans for the granting of Workmen's Compensation Insurance." These plans were and still are meeting the problems in connection with the insurance of so-called undesirable or extra-hazardous workmen's compensation risks, satisfactorily.

Accordingly, a similar plan was suggested for affording automobile bodily injury and property damage liability coverage as it was believed that this same type of plan could be made applicable to the problem involved in obtaining coverage for so-called undesirable risks which wished to obtain automobile insurance but were unable to secure it for themselves. The provisions of the original and initial Assigned Risk Plan for the State of New Hampshire was based on the general form and provisions of the Workmen's Compensation Voluntary Plan. Since that time as specific problems have arisen in connection with the administration of the various Plans, committees representing all types of carriers have met with insurance authorities, committees representing insurance producers, and others, and as a result have adopted constructive changes in the original New Hampshire Plan, and arrived at certain basic provisions which it is believed should be common to all Plans.

The present provisions of the New York Plan, which was put into effect November 1, 1941, reflect all of the changes agreed to to date between insurance authorities and company and producers' committees and it is believed that the provisions of the New York Plan are equitable and practicable and should serve as a basic model for all similar plans.

It should be stressed that these plans are "voluntary"—that is, carriers voluntarily subscribe to them, and every carrier authorized to write automobile bodily injury in the State concerned must subscribe to any such plan before it can become effective; further, that any plan remains in effect only so long as all carriers authorized to write automobile bodily injury and property damage in the State subscribe and remain subscribers thereto. Any carrier may resign from any plan at any time, but in such event that plan immediately terminates as respects the subscription not only of the resigning subscriber, but as respects all other subscribers, and in such event all carriers must reconvene to try to solve the problem and re-adopt some new form of plan.

To insure a clear understanding of many of the following sections of this paper, it is recommended that readers thereof have before them a copy of the existing New York Automobile Assigned Risk Plan.

Plans in Effect and Administrative Offices

State	Eff. Date	Administrative Office
N. H.	5-10-38	Maine Branch of Nat'l Bur. of Cas. and Sur. Und.
Mass.	11-16-39	Massachusetts Automobile Rate Administrative Bureau
Maine	2-1-40	Maine Branch of Nat'l Bur. of Cas. and Sur. Und.
Conn.	7-15-40	60 John Street, New York, N. Y.
Ill.*	10-1-40	175 W. Jackson Blvd., Chicago, Illinois
Wash.*	1-13-41	Seattle Branch, Nat'l Bur. of Cas. and Sur. Und.
Vt.	3-1-41	Maine Branch of Nat'l Bur. of Cas. and Sur. Und.
N. J.	4-1-41	60 John Street, New York, N. Y.
Va.	3-15-41	Virginia Auto Rate Administrative Bureau
N. Y.*	11-1-41	60 John Street, New York, N. Y.

* Plans are administered by a Governing Committee.

Note that for all states except Illinois these Plans are being administered from an existing office, thus keeping the costs of administration to a reasonable minimum. Further, as far as practicable, administrative offices have been "centralized" to further reduce administration costs and increase the efficiency of operation of administering the Plan—for instance, the National Bureau's branch manager at Portland, Maine, administers Plans for the three adjoining New England States of New Hampshire, Maine and Vermont; Plans for the adjoining States of New Jersey, Connecticut and New York are administered from a single office by the manager of several stock company workmen's compensation pools. A separate office for administering an Automobile Assigned Risk Plan has been set up only in the single State of Illinois, necessitating comparatively heavy administrative costs.

In determining the location of administrative offices for any Plan, primary consideration has been and will continue to be given to utilizing the part-time facilities of any competent existing office maintained by insurance carriers, either in the particular state, or in a nearby adjoining state, rather than to set up exclusively new and costly units of administration for any one state.

Massachusetts. An Assigned Risk Plan became effective in the State of Massachusetts on November 16, 1939. This Plan is administered by the Massachusetts Automobile Rating and Accident Prevention Bureau, but in view of the compulsory automobile law in Massachusetts and the peculiar circumstances leading to the inception of this Plan as compared to conditions and circumstances in other states, the Massachusetts Plan will not be considered further in this paper, apart from a brief citation as to its inception and its latest available report of operation.

Scope of Plans

The purposes of all voluntary plans are to provide a means by which a risk that is in good faith entitled to automobile bodily injury and property damage liability insurance in the State but is unable to secure it for themselves, may be assigned to an authorized insurance carrier, and to establish a procedure for the equitable distribution of such risks amongst all carriers.

The following is a summary citing the scope of the various plans:

New Hampshire, Maine, Connecticut

Applicable to all risks unable to secure automobile bodily injury and property damage liability insurance for themselves.

Vermont, New Jersey

Applicable only to risks required to carry financial responsibility insurance by any law of such States and unable to secure it for themselves.

Washington

Applicable only to risks subject to the Washington Financial Responsibility Law and unable to secure automobile bodily injury and property damage liability insurance for themselves.

Illinois

Applicable only to risks subject to the Illinois Financial Responsibility Law or the Illinois Truck Act and unable to secure automobile bodily injury and property damage liability insurance for themselves.

Virginia

Applicable only to risks required to carry insurance and unable to secure it for themselves and required by state law, city rules or ordinances, etc., or other state, county or city requirements which make it necessary for them to post evidence of financial responsibility in order to operate a motor vehicle in the state, county or city.

New York

Applicable to all risks not specifically excluded from the New York Motor Vehicle Safety Responsibility Act and unable to secure automobile bodily injury and property damage liability insurance for themselves. (This excludes risks as defined in Section 94FF of the New York Act.)

Basic Provisions of All Automobile Assigned Risk Plans

All plans now include the same major basic provisions in the same order, paragraph by paragraph. The exact wording differs slightly in the various plans due to variances which must be provided for as respects rate-regulated States as compared to non-rate-regulated States; and other variances due to the extent and nature of the respective plans and scope of coverage.

1. *Determination of Effective Date*

Voluntary Automobile Assigned Risk Plans become effective only when *all carriers* writing automobile bodily injury liability insurance in the State have subscribed thereto and remain subscribers thereto. (Exception: companies which write reinsurance or excess coverage exclusively, or classes of automobile business not subject to the Plans, are not required to be subscribers thereto.)

It should be noted that even carriers writing only a nominal volume of business and in some instances carriers which may be licensed or authorized to write automobile bodily injury but which actually have written no business are nevertheless required to subscribe to any voluntary plan before it can be put into effect. This is because any such carriers may at any time decide to materially increase their premium volume. As a practical result, carriers writing only a nominal volume or no volume of automobile bodily injury will have no risks assigned to them since risks are assigned by the managers of the Plans proportionate to carriers' premium volumes.

2. *Eligibility of Applicants*

All Plans incorporate specific rules defining risks that are in good faith eligible under the plans. An applicant must qualify by furnishing written evidence of declinations from at least three carriers dated not more than sixty days prior to the date of his application; an applicant is deemed in good faith and entitled to such insurance provided that during a three-year period immediately preceding the date of application he has not been convicted more than once or once each for two or more of a cited list of major offenses involving the operation of a motor vehicle; provided he has no major mental or physical disability; provided that during the preceding 12 months he has not intentionally registered a motor vehicle in the State illegally; and provided that during the preceding 12 months he has not failed to meet all obligations to pay automobile bodily injury and property damage liability insurance premiums contracted for during that period.

All conditions determining "whether or not the applicant is in good faith entitled to insurance" are not and cannot be cited specifically in the plans; however, the plans contain the above specific provisions which are deemed to be logical and justifiable to bar from the Plan applicants who cannot qualify under such provisions. It is obvious that many applicants who might qualify by these specific provisions may be deemed ineligible if they deliberately misstate their past records when applying for coverage, or when, in the interests of public safety, the proper authorities determine that they should be barred from operating a motor vehicle on the roads of the State.

3. *Rates*

Each Plan provides that risks assigned under the Plan shall be subject to the rules, rates, minimum premiums and classifications in force and to the rating plans applicable thereto, and that the manual rates be increased by the application of a multiplier of 1.10 for certain specified classes of risks (varying according to the scope of the Plans in the various states), and for all others a multiplier of 1.15. In rate-regulated States reference is made to the "manual in force" while in non-rate-regulated States necessary reference is to the rates, etc., which the company to which the risk may be assigned uses in such States.

The increase in the rate is primarily for the payment of commissions and field supervision costs properly loaded for the amount of taxes for such additional charges; also it is believed desirable and necessary to charge some reasonable penalty to assigned risks in order to provide incentive for them to insure their own removal from the Plan as promptly as possible; further, to provide the carriers some little leeway to pay the administration costs of the plan (which on the basis of 1941 figures amount to approximately 12% of the total premium volume developed on all assigned risks) and to provide a further necessary amount of dollars for costs of investigating the records of the applicants.

All Plans also provide that carriers may charge increased rates and minimum premiums commensurate with the greater hazard of certain risks, subject to approval or final review by the insurance authorities of the states concerned. Such increased rates have been found necessary in a comparatively few instances due either to the use of the car or the assured's past driving record.

4. *Commissions*

All Plans, except the Virginia Plan, provide for the payment of commissions to producers of record of assigned risks. The commission rates prescribed, and approved by the Acquisition Cost Conferences, are 5% for long haul trucking or public risks, if eligible under certain state Plans, and 10% for risks of all other classes. In all Plans other than Virginia and New York it is stated that the additional charge of 10% or 15% is made to provide for payment of commissions to producers of record designated by the assured, and for 2½% for field supervision allowance to the company to which the risk has been assigned or to its licensed agent—the balance being a rounded figure to provide for sufficient allowance for taxes in the amount of such additional charge.

Although assigned risk plans for workmen's compensation insurance carry no provision for commission payments to producers, the carriers have believed that as respects Automobile Assigned Risk Plans, producers are entitled to a nominal payment for their services in obtaining coverage for applicants as in many instances such coverage will be the only insurance such applicants purchase. It should be noted that the commission rates for producers of assigned risk business are appreciably less than the normal commission rates—thus providing a further incentive to producers of record designated by the applicant to attempt to obtain voluntary coverage for the applicant as soon as possible or in any event upon each renewal date of his coverage.

5. *Assignment Procedure*

All Plans provide that assignments shall be made by the Manager or Governing Committee proportionate to the respective automobile bodily injury premium writings of each carrier in the State. It is deemed most equitable to base such assignments exclusively on automobile bodily injury premium writings, due to the practices of some carriers in writing their property damage coverage directly in running-mate fire companies. It is believed most equitable and desirable to distribute risks on the basis of the net direct automobile bodily injury premium writings—in rate-regulated states adjusted to a standard manual basis.

6. *Administration Costs*

Until January, 1941, existing Plans (with the exception of Connecticut) contained no definite provision respecting administration costs. This was due to the fact that the existing Plans other than Connecticut were in the States of New Hampshire and Maine, and were being administered from the Maine Branch of the National Bureau, which Branch administers workmen's compensation for all carriers, both stock and non-stock; thus, the cost of administering those Plans up to December 31, 1940, was absorbed and assessed to carriers proportionate to their workmen's compensation premium volumes for such States. Effective with revisions of those Plans put into effect January 1, 1941, and now in all Plans (except Virginia), a standard provision is included to provide that cost of administration will be apportioned to all subscribers proportionate to their net automobile bodily injury premium writings. Illinois provides for a minimum assessment of $5 per carrier annually, and up until a pending revision of the Illinois Plan effective April 1, 1942, levied such costs on automobile bodily injury and property damage premium writings. Effective with calendar year 1942 costs will be levied in Illinois only on net direct automobile bodily injury premium writings. The cost of the Virginia Plan is absorbed in the cost of the Virginia Automobile Rate Administrative Bureau. Administrative costs of other Plans are apportioned on automobile premium writings adjusted to a manual basis in rate-regulated States. Only the New York and Illinois Plans have separate funds and separate bank accounts under the control of the Manager and Governing Committee—the funds for other States being handled in the interest of economy and efficiency by the Cashier's Division of the Home Office of the National Bureau (see Exhibit "C").

7. *Renewal Procedure*

All Plans now cite standard provisions for the treatment of assigned risks on expiration and renewal. Any assigned risk which is dissatisfied with a designated carrier may request reassignment for its renewal coverage on or before expiration. The standard provision for renewal reads as follows:

> "Every carrier insuring a risk under the Plan shall notify the Manager with copy to the producer of record at least THIRTY days prior to the expiration date whether the company will
>
> i. write the renewal of the business voluntarily for its own account at the rates and classifications normally applicable to risks not subject to the Plan;
> ii. accept the renewal assignment of the risk under the Plan;
> iii. refuse the renewal assignment of the risk giving reasons therefor."

The problem of adopting an equitable and practical procedure for removing assigned risks from the Plan upon expiration and renewal, if their experience during the period of assignment has been normal, has not been finally solved; but recommendations are under consideration by company committees and by the Special Committee of the Insurance Commissioners appointed to study this problem.

It is generally believed that the existing provisions in the Plans must be revised to avoid retaining indefinitely in the Plans a great number of assigned risks; such retention would be unfair to many of such risks whose records during their period of assignment might turn out to be better than normal. Recommendations being considered for incorporation into all Plans as soon as possible will probably provide for the present procedure to be followed at the first and second renewals of assigned risks, and a separate and distinct procedure after a risk has been carried as an assigned risk for three years. At that time, subject to certain specific conditions, it is believed the risk should be written at normal rates.

8. *Cancelations*

All Plans provide that designated carriers may cancel risks assigned to them if it develops that the applicant is not or ceases to be in good faith entitled to coverage under the Plan, but in all such instances the carrier must advise the Manager of the cancelation together with reasons supporting its action.

9. *Form of Plan*

Plans for all States are printed in manual-size pages, loose-leaf. (Exception: Virginia Plan is printed in rotaprint letter-size form and it is available in limited quantities from either the Virginia Bureau or the State Corporation Commission.) Plans for all other states (except Massachusetts) are available at cost upon order from the Purchasing Division of the National Bureau which prints these Plans in quantity in the interests of economy and efficiency.

It is proposed that at the next revision of each Plan the revised Plans will be sent out automatically through the Central Distribution Division of the National Bureau to holders of the respective state manuals located in each State, as state exception pages to manuals are now sent. This will result in the Plan being placed in the hands of all holders of the state manuals concerned. In addition, company home or branch offices may order such additional quantities of the Plans as they desire, direct from the Bureau.

As of April 1, 1942, the Illinois Plan which heretofore had been on letter-size form, has by authority of the Governing Committee of that Plan been reprinted in manual-size loose-leaf form with all of its basic provisions amended to the standard language. Thus the Virginia Plan is the only Plan which is not available in the standard manual-size form.

10. *Application Form*

The application forms for all state plans with the exception of Virginia and Illinois are standardized on form W.C.2330B; quantities of these forms may be obtained at cost upon order from the National Bureau which prints same in the interest of efficiency and economy. Application forms for Virginia and Illinois may be obtained upon order direct from the Administrative Offices of such Plans.

Copies of the Massachusetts Plan and necessary forms may be obtained upon order direct from the Administrative Office of that Plan.

Major Differences in Existing Plans

Major differences now existing may be cited as follows:

1. *Producers of Record*

Maine and Virginia Plans refer to "broker of record"; in Virginia no mention is made of any producer of record since applications must be submitted in the first instance to the Insurance Department. In all other states plans refer to "producers of record." It is believed that "producer" is a better term than "broker" in that "producer" can apply equally to any licensed agent or licensed broker.

2. *Approval or Review of Special Rates, Refusals to Issue Policies, Cancelations, etc.*

Plans for Connecticut, New Jersey and Vermont cite that special rates, refusals, cancelations, etc., are subject to final review by the insurance authorities of those states. In other plans provision is made requiring the approval of the state insurance department authorities, in view of the full or limited rate-regulatory powers in authorities of such states.

3. *Premiums Used as Basis for Assignment of Risks and for Assessing Costs of Administration*

New York, Virginia and Illinois Plans now require net direct automobile bodily injury premium writings; New York and Virginia further require such writings to be adjusted to a standard basis by the amount of any approved deviation. Washington requires net automobile bodily injury premium writings adjusted to standard basis by amount of approved deviations. New Jersey requires net direct automobile bodily injury premium writings and Plans for Connecticut, Maine, New Hampshire and Vermont provide for net automobile bodily injury premium writings. On the next revision of all plans an endeavor will be made to have these provisions standardized so as to provide that all will be based on net direct automobile bodily injury premium writings—adjusted to a standard basis by the amount of approved deviations in rate-regulated States.

4. *Additional Charges for Assigned Risks*

All Plans (except New Hampshire and Washington) provide for these additional charges which amount to 10% for long haul trucking and public automobile risks if eligible under the Plan, and to 15% for risks of all other classes. (Exceptions: New Hampshire and Washington, for both of which proposals have been made to change from the present single charge of 15% to the standard charges of 10% and 15% at the time of their next revision.

5. *Commissions*

All Plans (with the exception of Virginia, New Hampshire and Washington) provide for the payment of 5% commission on long haul trucking and public automobile risks if eligible under the Plan, and 10% on risks of all other classes. Existing exceptions are for the States of New Hampshire and Washington where commission of 10% are payable on all classes but recommendations have been submitted to bring the procedure in these Plans into conformity with that of other states. In Virginia no commissions are applicable to assigned risks as covering letters sent out with the Plan to subscribers made the definite statement that no commissions are payable to producers of record but that a designated carrier may pay a commission to its designated agent—apparently to a maximum of 15%—for counter-signature and servicing the risk.

This particular Virginia provision was drafted and put into effect by the Virginia Insurance Department, but under such provision the applicant's producer of record receives no remuneration whatsoever, while the agent of the designated carrier which issues the policy under the Virginia Plan can be given some remuneration for servicing a risk after the policy is written.

6. *Deposit Fee—Virginia Plan*

Effective with revision dated July 22, 1941, applicants must submit a certified check for $15 which the designated carrier may use to investigate the eligibility of the applicant. If the carrier issues a policy, this $15 applies on the premiums due for such policy. If the carrier declines to issue policy, and such declination is sustained by the Manager and insurance authorities, carrier may retain all or part of the $15 to reimburse it for its costs of investigation, but must render an accounting of its expenditures to the Insurance Department. We understand this provision was adopted to preclude and to stop a large number of risks who submitted applications but apparently had no money with which to pay this premium. Experience in all plans to date indicates that approximately 20% of all applications submitted are "not taken" by the applicant even although the carriers have advised them that they are willing to issue a policy for a stated premium.

It is the opinion of most carriers that this particular provision is not desirable as the amount of bookkeeping and accounting involved more than offsets the expense of handling applications from applicants for insurance under the Plan who apparently are unable to pay the required premium.

7. *Right of Appeal*

The New York Plan includes a specific provision respecting right of appeal by any applicant or subscriber to the Governing Committee, and final appeal to the Superintendent of Insurance. When the New York Plan was instituted it was deemed most desirable to incorporate this new provision, although no similar provision exists in other plans. In the States of Illinois and Washington, whose Plans include provision for a Governing Committee, appeals are actually considered by such Committee and to date have been handled successfully without any explicit provision in such Plans. In all other States the Managers of the respective Plans handle grievances after consulting with the insurance authorities of such states.

8. *Recertification of Operator's License of Applicant*

The Illinois Plan (since its revision as of April 1, 1942), and the New York Plan cite a provislon providing that at the option of the designated carrier such carrier may request the Motor Vehicle Commissioner or other proper authority to recertify the ability of the applicant to continue to hold an owner's or operator's license, and such applicant will not be eligible under the Plan until he is recertified as competent to hold and use an operator's license either by a driving test or such other means as may be required.

It is believed that this provision should be included in all Assigned Risk Plans.

9. *Letters of Declination*

The New York Plan alone provides that declinations from at least three carriers, which must be filed by the applicant accompanying his application, may be signed by specially designated authorized representatives of such carriers—in addition to the usual requirement that such letters can be signed by a full-time salaried employee. This provision in the New York Plan was included at the specific request of producers' representatives, and the committee in charge of drafting the New York Plan reluctantly agreed to it. It has been the general consensus of carriers that declinations should be signed only by full-time salaried employees in order to avoid any possibility of routine and hasty declinations.

10. *Administration of Plans—Governing Committees*

The Plans for Illinois, Washington and New York are administered by a Governing Committee, including at least one representative of each type of carrier licensed to write automobile bodily injury liability insurance in such States. In all other States the Plan is administered solely by a Manager without any Governing Committee. Both forms of administration have functioned satisfactorily to date. It has been found that the services of a Governing Committee are of real value only when the representatives of that Committee can be maintained as competent home office employees rather than Managers of Branch Offices. In theory it might well be argued that every Plan should have a Governing Committee to consider and rule on administrative problems which may arise and as and when it may become necessary to consider the adoption of Assigned Risk Plans in additional States it is probable that all such Plans will be administered by a Governing Committee and Manager.

11. *Eligibility Qualifications*

Effective July 22, 1941, carriers were advised by the Virginia Insurance Department of an amendment to the Plan reading as follows:

> "The Virginia Bureau of Insurance shall have the authority to refuse assignment under the Plan should in their opinion such action be justified after reviewing all information developed by the company or from other sources bearing upon the moral or other conditions of the risk."

The Virginia Bureau deemed this amendment necessary and essential in order that the carriers would not be forced to accept assignments and issue policies to applicants who, although otherwise eligible, were of notoriously bad moral character.

No other Plan contains this provision, although it has been considered by the Governing Committees of New York and Illinois. It can be readily understood that although theoretically such a provision might be deemed desirable, the refusal of any risks on such specific grounds might possibly involve serious dangers such as suits for libel, etc.

Formation of Plans

As can be readily understood, there has never been and is not now any concerted feeling amongst private insurance carriers that Voluntary Automobile Assigned Risk Plans should be initiated and put into force in every state. As a matter of fact, in the great majority of states the average applicant encounters no difficulty in obtaining insurance on a voluntary basis from any one of the numerous carriers licensed to write automobile insurance in such States. However, as concrete problems arise, casualty insurers are now in a position to meet with the proper state authorities and develop some type of assigned risk plan which will provide for an equitable distribution of risks unable to obtain insurance for themselves. In actual practice, such problems first come to the attention of representatives of the organized stock and non-stock carriers who suggest to the insurance and motor vehicle authorities that they appoint a company committee on which will be represented at least one carrier of each type operating in the State. Such committee then functions as a drafting committee, and after developing a plan which it is believed will meet the problem and which is satisfactory to the insurance authorities, recommends that such Plan be sent out to all carriers for subscription.

It should be noted that up until now all carriers have been required to subscribe to any proposed Plan without any reservations—apart from the single reservation approved for direct writing companies for the New York Plan. This reservation has been permitted in view of the fact that some companies write all their business direct and pay no commissions whatsoever. However, realizing that producers representing the applicant are entitled to some fee for the services which they rendered the applicant, such direct writing companies have become subscribers to the New York Plan with the following reservation which has been deemed acceptable:

> "This company's subscription to the New York Automobile Assigned Risk Plan is subject to the following reservation: this company will pay no commission on any risk assigned to it under the Plan. . . . This company will pay to the Manager of the Plan, to meet special costs of investigation and service which may be incurred on risks assigned to it, 5% of the total premium charged and collected from the applicant on long-haul trucking risks so assigned, and 10% of such premium on all other risks so assigned. Any special allowance to a producer of record for investigation and other services on risks assigned to this company must be arranged for between the producer and the manager."

In actual practice this reservation functions very satisfactorily as by its provisions all carriers in New York charge the same rates to assigned risks which rates appear uniformly on designated carriers' policies. Carriers filing with such a reservation remit to the Manager immediately their own check for the stated percentage of the premium collected from the applicant—the

Manager depositing such check and issuing the Plan's check to the producer for services rendered.

For Plans other than New York, direct writing carriers have not filed such reservations, but follow a procedure whereby the producer of record receives his remuneration direct from the applicant rather than from the designated carrier.

In all states problems have arisen respecting the legality of carriers paying commission to producers of record who may neither be holders of general brokers' licenses nor happen to be licensed agents of the designated carrier. In New York this problem was solved by amending Section 115 of the New York Insurance Law to provide specifically that an insurer participating in a plan for the assignment of automobile liability insurance, which plan has been approved by the Superintendent of Insurance, may pay commission to an adequately qualified agent who is licensed to act as agent for any insurer participating in such a plan, when such agent is designated by the assured as producer of record under an Assigned Risk Plan pursuant to which a policy is issued under such Plan.

In other states this problem has not been solved by amended legislation and undoubtedly studies should be made to propose similar legislation in other states.

After all subscriptions have been received and reviewed and checked with a list of all licensed carriers operating in any state, the insurance authorities can determine the effective date of the Plan and the carriers' committee can set up the necessary administrative office for the Plan's functioning.

History and Inception of Existing Plans

New Hampshire

This was the original Assigned Risk Plan and was deemed essential as a result of the numerous complaints reaching the Insurance Commissioner from risks unable to secure insurance and yet required to carry insurance under the terms of the New Hampshire Financial Responsibility Law. There existed a growing demand on the part of the public for relief through legislation, if necessary, and it was the contention of the Insurance Commissioner that although all risks were not insurable, a substantial proportion of them were insurable and that a plan should be adopted by the carriers to take care of such risks. After several conferences the basic provisions of a Plan were agreed upon and the Plan submitted to all carriers for subscription by the National Bureau as respects stock companies and the Mutual Bureau as respects non-stock companies. The Plan has been twice revised to incorporate more desirable and workable provisions and is functioning to the satisfaction of the public, the Insurance Commissioner and the carriers.

Maine

In February, 1940, after numerous conferences with the Insurance Commissioner, the carriers deemed it necessary to establish a voluntary Plan for the State of Maine, similar to the New Hampshire Plan. It was maintained that adverse legislation undoubtedly would be proposed unless the carriers got together on some such plan. Again, at the request of the Commissioner, the National Bureau and the Mutual Bureau solicited subscriptions to this Plan, which since its introduction has had one single revision to incorporate more desirable and workable provisions.

Connecticut

In early 1940 the Insurance Department advised the National Bureau and the Mutual Bureau that it was essential that carriers make some provision to grant coverage in an orderly fashion to Connecticut risks who were unable to obtain insurance for themselves. The Plan suggested was modeled upon existing New Hampshire and Maine Plans and put into effect in July, 1940, after subscriptions had been solicited and obtained by the National Bureau and the Mutual Bureau from stock and non-stock carriers respectively.

Illinois

In the summer of 1940, after the passage of the Illinois Truck Act, the Illinois Insurance Department urged the carriers to make express provision for the adoption of some plan whereby risks subject to the Illinois Truck Act or the Illinois Financial Responsibility Law be granted coverage if they were in good faith entitled to insurance. Representatives of all types of carriers operating in the State held several meetings with the insurance authorities and evolved the present Illinois Automobile Plan. Although the provisions in general are modeled on the existing New Hampshire Plan, a substantial departure was made in that the Plan in Illinois is administered by a Governing Committee, representatives of which function as an Assignment Committee. A new administrative office in Chicago has been set up to administer the Plan; headed by an appointed Secretary. The Plan is restricted to risks subject to the Illinois Financial Responsibility Law or the Illinois Truck Act.

Washington

An Assigned Risk Plan was made effective in Washington in January, 1941, at the specific request of the insurance authorities who had pointed out it was essential carriers adopt some such plan for all risks, subject to the Washington Financial Responsibility Law, in good faith entitled to insurance coverage, but unable to secure it for themselves. A committee representing all of the leading carriers of various types operating in Washington, drafted a plan modeled in part on the existing New Hampshire Plan and in part on the existing Illinois Plan. The Washington Plan is administered by a Governing Committee and a Manager appointed by that Committee (the Manager appointed being the National Bureau's Branch Office Manager in Seattle, Washington).

Vermont

The Vermont Plan (effective March 1, 1941) is administered by the Branch Manager of the Maine Branch of the National Bureau. The Insurance Commissioner of Vermont had advised carriers that a serious problem was arising in Vermont as respects risks required to carry financial responsibility insurance by any Vermont law and unable to secure it for themselves. A committee representing the various types of carriers met in the Commissioner's office in Montpelier and adopted such a Plan for Vermont, restricted to risks required to carry financial responsibility insurance by any law of that State.

New Jersey

In early 1941 the New Jersey Department advised that they were encountering an increasing number of risks who were required to carry financial responsibility insurance by any law of the State and who were unable to secure it for themselves. At that time definite legislation had been introduced and was pending in the New Jersey Senate to set up a mandatory pool for automobile assigned risks. Accordingly, a committee of representative carriers met in the Commissioner's office at Trenton and agreed on the basic provisions of an assigned risk plan, restricted to New Jersey risks required to carry financial responsibility insurance by any law of the State of New Jersey. This Plan was subscribed to by carriers in response to direct requests from the Insurance Department and put into effect in March, 1941.

Virginia

The Virginia Insurance Department, in early 1941, through the medium of the Virginia Automobile Rate Administrative Bureau, advised carriers that steps must be taken promptly to adopt an assigned risk plan for Virginia as respects risks required by state law or city rules and ordinances, or other state, county or city requirements which made it necessary for such risks to post evidence of financial responsibility in order to operate a motor vehicle in the state, county or city and which risks were unable to secure insurance for themselves.

Several meetings were held in Richmond and New York City by company representatives and representatives of the Insurance Department and producers' organizations. As a result of these meetings, a Virginia Plan was adopted effective April, 1941, applying to all risks required to carry insurance and unable to secure it for themselves. The provisions of the Virginia Plan were generally modeled on other existing assigned risk plans, but vary as respects the following major provisions:

(a) Administration is by the Manager of the Virginia Automobile Rate Administrative Bureau, subject to approval of the Governing Committee of that Bureau and the State Corporation Commission, and

(b) The applicant must apply directly to the Bureau of Insurance who first passes upon the eligibility of the applicant before referring the risk to the Manager for assignment. Further, the additional premium charge on Virginia assigned risks must be used to compensate the agent of the company to which the risk is assigned.

The Virginia Plan was revised on July 22, 1941 to provide that applications must be accompanied by a certified check in amount of $15 which deposit may be used by the designated carrier in making its investigation to determine if the risk is insurable under the Plan. If the risk is acceptable, the deposit is deducted from the annual premium charge. If the risk is found uninsurable, or ineligible, the unused portion of the $15 is returnable to the applicant, the carrier being required to make a proper accounting to the Bureau of Insurance on any portion retained.

New York

With the passage of the revised New York Financial Responsibility Law, which became effective January 1, 1942, carriers' representatives were definitely advised that they would have to adopt and put into effect a voluntary Plan for granting insurance to all risks not specifically excluded from this New York Motor Vehicle Safety Responsibility Act. The Motor Vehicle Department and Insurance Department representatives stated that unless such a plan were put into effect on or before the inception date of the revised Act, a mandatory plan or pool would be drafted as an amendment to this Act. Accordingly, during the summer of 1941 numerous meetings were held by carriers' and producers' representatives, as a result of which provisions of an acceptable New York Plan were agreed upon. The Superintendent of Insurance sent out the Plan for subscription to all carriers in September, 1941, and the Plan was finally put into effect on November 1, 1941. It is applicable to all risks unable to secure automobile bodily injury and property damage insurance for themselves and which are not specifically excluded from the New York Motor Vehicle Safety Responsibility Act.

Massachusetts

The Massachusetts Plan was first put into effect on November 16, 1939. Its inception was caused by a number of circumstances; however, the closing of two local mutual companies by the Massachusetts Department at the end of 1938 undoubtedly crystallized the need of an organized method of providing insurance for undesirable risks if the companies were to expect to remain in business in this State. The Plan was adopted "in the interest of public service."

The original plan, effective November 16, 1939, was revised on October 25, 1940. All members of the Massachusetts Automobile Bureau individually subscribed to the plan by filing a "Notice of Acceptance."

The plan is administered in such a manner that it is not possible to quote figures of annual cost of operation. Some clerks are considered to be the permanent operating staff of the Plan but at peak loads the Plan's operation requires the borrowing of Bureau employees at irregular intervals. It is stated that this method keeps the cost of administering the plan below what it otherwise would be if it were necessary to maintain a trained and independent staff for automobile assignment purposes only.

> Total assignments for policy year 1940 were 11,092 and in 1941 up to October 11, 1941, a total of 13,186. Non-renewal notices credited for policy year 1940 amounted to 556, and for policy year 1941 to October 11, 1941, to 634.

The only assigned risk experience available to date was developed under the 1940 policy year and totaled as follows:

> Earned Car Years—6,523.32, Compulsory Premium—$319,027, Loss Ratio—145.5%.

Due to the compulsory law in Massachusetts, the basic provisions of the Massachusetts Plan vary to a considerable extent from the basic provisions of all other plans. The Massachusetts Plan does not apply to any coverage other than compulsory coverage under the Massachusetts statutes; nor does it apply to public automobiles. The basis of assignment is pro rata of the total Massachusetts compulsory premiums as reported to the Bureau by its member companies and for each calendar year's assignments the compulsory premiums for the first six months of the preceding calendar year is used as the basis. Due to the unique situation in Massachusetts, it is believed neither practicable nor feasible to standardize the Massachusetts Plan to conform to the basic provisions of plans in other states, or vice versa.

Operation Reports of Assigned Risk Plans

A standard form of "operation report" has been adopted for each Plan and these reports are distributed to all subscribers and to the insurance authorities of the states concerned semi-annually as of June 30 and December 31. Such reports not only reflect the overall operations of each Plan from its inception, but cite for each subscriber to the Plan the number of risks assigned for which policies have actually been issued, together with the type of cars covered and the written premium volume. Thus, every subscriber has a definite check upon the equitable distribution of risks made by the Manager or the Assignment Committee concerned. In addition, all subscribers receive annually a report of the administration costs of each Plan.

Exhibits A and B attached to this paper show for each separate Plan (other than Massachusetts) a summary of the operation reports from the inception date of each Plan up to and including report for calendar year 1941. Exhibit A cites the number of applications received and handled, the number of applications and reassignments either rejected for cause, not taken by the applicant, or voluntarily written by carriers, together with a statement showing the number of assignments and reassignments completed for which policies have actually been issued. Exhibit B cites the written premium volume of assigned risks for which policies have been issued.

It is interesting to note that apart from applications pending as of December 31, 1941, out of 3,998 completed items handled, 68.3% were offered and accepted coverage under the Plan, 3% were voluntarily written by carriers. 8.1% were rejected for cause, and 20.6% were not taken by the applicant.

Experience of Assigned Risks

At this time no credible developed experience for risks assigned under Automobile Voluntary Plans is available. This is due to the fact that most of the Plans were initiated during the past 24 months and completed experience of assigned risks can only be obtained on fully earned business for completed policy years.

The only experience called for and compiled to date has been that of New Hampshire, for policy years 1938 and 1939, each developed to 24 months. New Hampshire policy year 1938 experience on 59 assigned risks developed earned premiums of $3,049 and incurred losses on 7 claims of $1,826—a loss ratio of 59.9% bodily injury and property damage combined. New Hampshire policy year 1939 experience on 184 risks developed earned premiums amounting to $9,880 with incurred losses on 19 claims totaling $3,576—a loss ratio of 36.2% bodily injury and property damage combined.

Neither of these reports are conclusive due to the comparatively small number of risks involved. This year experience calls have been sent by the Managers of the Plans for New Hampshire, Maine, Connecticut and Illinois, requiring the filing of experience on assigned risks for policy year 1940, developed to 24 months. Compilation of these data will be available some time in July, 1942.

It will thus be seen that it is rather too early to draw any conclusions concerning the good or bad experience of assigned risks and any possible effect their experience may have in rate level calculations for the states concerned; and also to determine any additional justification for surcharges.

Policies written for assigned risks are not designated by any special or peculiar statistical classification code, and thus the experience will be reported to ratemaking boards and bureaus and included with the experience of all risks written on a voluntary basis for determination of rate levels and general rate revision purposes.

However, all carriers have been warned to specially designate assigned risks in their accounting and experience records so that they may be in a position to file separate experience on such business with the Managers of the respective Plans. Administrative offices are in a position to furnish any subscriber with the policy numbers of risks assigned to them for which policies have actually been issued, but due to the increasing number of risks in the Plans, it has been deemed essential for carriers to identify same so that experience might be readily available. Most carriers have developed a procedure whereby they assign a single producing office code in a special field on their punch cards, which, in conjunction with the state code, enables them to obtain this experience readily. Other carriers have set up a special individual risk experience on each assigned risk from which they can furnish the experience data.

Written Premium Volume

Exhibit B, attached, cites for each calendar year during which one or more state plans have been in operation, the net written automobile bodily injury and property damage combined premiums on assigned risks for which policies have been issued. Such premiums in 1941 totaled $102,330.71.

Administration Expenses

Exhibit C attached cites the latest available data on administration expenses for calendar year 1941 for each Plan and also cites estimated expenses for calendar year 1942. Expenses incurred were determined on the basis of detailed time studies kept by the Managers of the various Plans —which basis was used in offices where the administration of Plans is a part-time function on the part of the Manager and staff. The resultant figures indicate that for each application or reassignment handled costs average between $3.00 and $3.75.

Costs for the Illinois Plan are not comparable since that Plan is administered from an independent office whose sole function is the administration of the Plan. Indicated costs for New York are not credible due to the fact that the Plan went into effect only from November 1, 1941.

Estimated costs for 1942 have been based on the increasing trend of number of assigned risks in the various Plans.

Justification of Rates and Surcharges

At various times queries have been raised as to the justification for charging all assigned risks the usual manual rates or rates at which companies would write voluntary business, increased in every instance by the application of a multiplier of 1.10 or 1.15. A study has been made of the 1941 operations of the New Hampshire, Maine, and Vermont Plans, which are administered from a single office. During 1941, 1,008 applications and reassignments were handled for the three plans combined, developing written premiums for policies actually issued of $33,866. If it is assumed that all of these premiums represented 1.15 of normal premiums, the carriers thus obtained additional premium of $4,417 by application of such surcharges. Using the normal acquisition allowance of 25% on the unsurcharged premium, it might be held that carriers had, in addition, $7,362, or a total of $11,779 over and above the normal amounts in the rates required for losses and expenses other than acquisition.

The actual costs of these three plans in 1941 was $3,071. 10% of the total premium collected paid as commission to producers of record would have amounted to $3,387. Taxes on the amount of surcharge premium collected would have been approximately $100. In addition to these expenses, it would seem reasonable to assume that each carrier incurred expenses of at least $5 per application handled due to the necessity of special investigation costs and correspondence in connection with the issuance of the policy—for the 1,008 applications, this would total to $5,040. Thus, it can be reasonably estimated that for these three plans in calendar year 1941 carriers incurred total expenses of $11,598 for acquisition costs, special investigation costs, and administration costs of the Plan. This amount closely approximates the $11,779 which carriers collected as additional surcharge premium plus an allowance of 25% for acquisition costs in the normal premium; so that in effect, despite charging all assigned risks their normal premiums times a multiplier of 1.10 or 1.15, and despite the reduced commission paid on the total premiums collected on those risks, carriers retain only the same amount of dollars to pay all other normal expenses and losses that they would retain if such business had been voluntarily written. It should be further noted that multipliers of 1.10 and 1.15 were originally determined and based upon commission rates of 5% for public passenger carrying vehicles and long-haul trucking risks, and 10% for all other risks, together with 2½% as field supervision allowance to the company to which the risk has been assigned or to its licensed agent—and such amounts, loaded for taxes on the amount of the surcharges, were rounded to these multipliers of 1.10 or 1.15. In the foregoing calculations no allowance has been made for the 2½% of the surcharge premium which many companies undoubtedly incurred as field supervision allowance on such risks; further, it can be seen from this calculation that despite the definitely "sub-standard" type of most assigned risks and the extra hazards which, as a group, they entail, carriers actually do not receive any more premium dollars for losses on assigned risks than they do on normal business voluntarily written.

Administrative Recommendations Promulgated and in Effect

Attached to this letter is a separate memorandum summarizing recommendations and rules adopted and put into effect in various Plans by the Managers and Governing Committees of such Plans. Arrangements have been made whereby Managers of all Plans are automatically advised of the adoption of any rule or recommendation in any single Plan so that the Manager of each separate Plan may be in a position to administer the plans in a uniform manner in so far as possible.

Contemplated Program for 1942

1. A Special Committee of the Insurance Commissioners was appointed at their last Convention to study and report on desirable provisions of all assigned risk plans with particular stress to determine a practicable and equitable procedure as respects treatment of expirations and renewals of assigned risks. The Committee is headed by Commissioner Blackall of Connecticut, the remaining members being representatives of the Insurance Departments of the States of New York, New Hampshire, New Jersey and Illinois. The Governing Committee of the New York Plan, together with representatives of the National Bureau and Mutual Bureau, will consult and advise this Special Committee in its work, so that it may be in a position to make a report at the next meeting of the Insurance Commissioners.

2. It is proposed that as soon as a satisfactory solution of the expiration and renewal procedures have been determined, recommendations be made that all plans be revised to include such provisions and at the same time all plans be amended and standardized as follows:

(a) All Plans to be reprinted in manual size on white paper and distributed through the Central Distribution Division of the National Bureau so that they will automatically reach holders of state manual pages located in each respective state (this will insure a widespread distribution of the Plans amongst producers and avoid current criticisms that the existence of such Plans are not generally known in the field.

(b) Each Plan to contain a supplementary page citing concise instructions for the proper completion of application forms and their submission, accompanied by proper documents, from producers' offices.

(c) All Plans to be amended to provide for assignment of risks and distribution of administration expenses, based on carriers' net direct automobile bodily injury premiums written (adjusted by approved deviations in all rate-regulated states).

(d) Incorporation in all Plans of a provision similar to that now existing in New York and Illinois Plans respecting optional recertification of applicants under the Plan at the option of the designated carrier.

3. It is believed that consideration should also be given to eliminating from the present provisions of all Plans the requirement that applications must be accompanied by copies of the applicant's letters to three separate carriers soliciting coverage. In actual practice it has been found that this requirement seems to be of little practical value and causes very considerable delay and correspondence. Also, a study should be made as to the necessity of amending state licensing laws in all States other than New York to permit the payment of commission to producers whether or not they are holders of brokers' licenses or are agents of the designated carriers. Lastly, every possible measure should be taken to speed up investigations of applicants by designated carriers so that within 30 days at most from the date of application, provided payment is received by the designated carrier, coverage under the Plan may be granted to eligible applicants.

Conclusion

The initiation of an Assigned Risk Plan in any State necessarily results in many practical problems of administration, the majority of which cannot be anticipated in full.

First and foremost, a successful functioning of any Plan is to make certain that producers and company underwriters thoroughly understand its provisions and submit applications and investigate same as respects all essential requirements. Thus producers and subscribing companies have an obligation to aid any applicants to obtain letters declining coverage in the form and manner prescribed by the Plan, with such letters properly signed. Producers must guard against soliciting declinations as such and must make a real effort to secure voluntary coverage rather than ask that a risk be declined.

Approximately 80% of all applications received for coverage under the various Plans are received incomplete in one or more particulars. Although most of the information is not of vital importance, a great deal of really essential underwriting information is consistently omitted, resulting in delay and correspondence. All of this delay can be avoided if applications are fully completed.

Secondly, the administrators of Plans must guard against taking an arbitrary stand as respects technical compliance with every single requirement as a great deal of incomplete and unessential information can be developed by the designated carrier when it investigates the risk.

Subscribing carriers receiving risks assigned to them under the Plan should make a real effort to complete their investigation within the prescribed period of 15 days in order to avoid complaints of undue delay in granting coverage.

State officials in charge of Motor Vehicle Departments, Licensing Departments, and Insurance Departments should continue to cooperate by refusing to license or re-license owners and operators on the roads of the State if investigation develops that in the interests of public safety they should not be permitted to drive motor vehicles—whether or not they can obtain insurance voluntarily or under any Assigned Risk Plan.

It should be remembered that from every viewpoint each and every applicant for coverage under an Assigned Risk Plan is definitely "sub-standard" in one or more respects as they have each been declined coverage from at least three licensed carriers.

The largest single group of applicants are those required to file evidence of financial responsibility as distinct from those who do not have to meet such requirements, but simply desire insurance protection. In States where "broad" plans are in effect the largest single group of applicants comprises those who are physically disabled either through deafness, whole or partial, loss of use or loss of one or more limbs, or who have other physical deformities. Another large group of applicants comprise those who have had one or more accidents during recent months for which they have been convicted. The majority of such applicants are those who have been convicted at least once for intoxicated driving, while a smaller group includes applicants with a recent high accident frequency. A surprising number of applicants under the Plan are individuals aged 70, 80 or more, and a smaller group comprise individuals who conduct questionable or possibly illegal business enterprises.

It may be truthfully stated that the Automobile Assigned Risk Plans now in effect have been and are receiving the fullest cooperation on the part of all private insurance carriers which have voluntarily subscribed to them; and although a few practical problems remain to be solved, the Plans as a whole have satisfactorily solved the problem of granting insurance coverage to eligible risks in good faith entitled to insurance but who were unable to obtain it for themselves.

ADDENDUM

Proposed California Assigned Risk Plan

In view of an increasing number of complaints because of the inability of automobile owners and operators in California who are required to furnish evidence of insurance under either the Safety Responsibility Law or the Highway Carrier Law of that State, to secure such coverage, the Insurance Commissioner of California called a conference of representatives of all classes of insurers in San Francisco on January 19, 1942. It was the consensus at that conference, which was attended by the Director of Motor Vehicles, that immediate steps should be taken to the end of setting up an Assigned Risk Plan for California. The appointed drafting committee completed their work in late March, and on April 2, sent out to all carriers licensed to write automobile bodily injury in California, a proposed California Plan to become effective within fifteen days after all carriers subscribe thereto.

The proposed Plan will be administered by a Governing Committee and an appointed Manager, the tentative administrative office of the Plan being cited as Room 421, 315 Montgomery Street, San Francisco, California.

The Plan is restricted to a risk required to furnish proof of financial responsibility pursuant to and as required by the California Vehicle Code, or that is required to furnish evidence of bodily injury and property damage liability insurance to the California Railroad Commission (except risks exclusively carrying passengers for hire or compensation), that is in good faith entitled to such insurance in the State, but is unable to secure it for itself.

In general it can be stated that the Plan has been modeled upon the existing New York Plan, including all of its standard provisions; for instance it permits signatures on letters of declination accompanying applications for coverage to be signed by specifically designated authorized representatives of carriers as well as salaried employees; includes a provision for recertification of operator's license; and cites a specific provision for handling of appeals. Copies of the Plan and application form may be obtained upon requisition to the Manager.

Only two major differences from other existing Plans are incorporated in the proposed Plan. The first of these deals with the eligibility of the applicant as respects "convictions." The California Law is unique in that upon first conviction for misdemeanor or drunk driving the operator loses his license, but may secure probationary license for a period of one year. If he is convicted a second time either during the probationary period or subsequently, his license is again suspended and remains so until he files proof of financial responsibility. In other words, the operator is allowed one prior conviction for misdemeanor, drunk driving or reckless driving where injury to person actually results therefrom, but upon a second conviction for either of these offenses he must file proof of financial responsibility.

The Drafting Committee, the Insurance Department and the Motor Vehicle Department agreed that any plan that would make ineligible an applicant who has two "drunk driving convictions" during the three-year period immediately preceding the date of application would not solve the acute problem which exists in California. Accordingly, the proposed California Plan differs from all other existing Plans in that it states that a risk shall not be considered in good faith entitled to coverage if the applicant or anyone who will drive the motor vehicle has during a three-year period immediately preceding the date of application been convicted more than twice for one, or more than once each for two, of the following offenses growing out of separate violations of the Law of California

(1) driving a vehicle while intoxicated or under the influence of intoxicating liquor in violation of Section 502 of the Vehicle Code;
(2) driving a vehicle in a reckless manner where injury to person actually results therefrom.

The California Plan does contain the usual standard provisions as respects other major convictions during the three-year period immediately preceding date of application and for such cited convictions, if applicant has been convicted more than once of one or once each for two or more of the specific offenses he will be deemed ineligible for coverage under the Plan.

The second unique provision proposed in the California Plan is that each application for insurance must be accompanied by an investigation fee of $5 in the form of a certified check or money order which shall be paid to the Plan and credited against the premium if the risk is assigned and accepted, and the applicant pays the balance of the premium in accordance with the Plan; if not, the fee is not returnable.

The Drafting Committee believes that this provision will estop a great number of applications for coverage from applicants who do not have the necessary monies to pay the premium.

Although not cited as a specific provision of the Plan, the Drafting Committee has adopted the following resolution, with the understanding that it will be re-adopted if and when the Plan becomes effective:

> Resolved: Where an applicant for assignment under the Plan is of Japanese extraction, acceptance of the assignment shall be optional with the designated insurer.

It is believed probable that the California Plan will become effective some time during the month of May, 1942.

New York Automobile Assigned Risk Plan

Report of Operations to April 9, 1942

Since the New York Plan only became effective November 1, 1941, its operation report as of December 31, 1941, is of slight, if any, value. As of April 9, 916 applications had been received from inception of the Plan on November 1, 1941; 353 policies have been issued; 159 applications were not taken by the applicants either for non-payment of premium or because voluntary coverage had been secured, or the application had been withdrawn by the applicant for other reasons; only 26 applications were declined or rejected as not in good faith entitled to coverage under the Plan; 5 applications had been received from applicants ineligible for assignment; 295 assignments were being investigated by the carriers; and premium had been quoted the applicants on 118 of these; the balance of 78 applications were pending in the administrative office for receipt of missing information necessary before assignment could be made.

Automobile Assigned Risk Plans Exhibit A

Summary of Operation Reports to 12-31-41

State and Inception Date of Plan	Cal. Year	Applications Received			Applications and Reassignments			Assignments Completed		
		New	Renewal	Total	Rejected for Cause	Not Taken by Applicant	Voluntarily Written by Cos.	New	Renewal	Total
New Hampshire 5-10-38	1938	108	—	108	18	30	2	58	—	58
	1939	264	25	289	26	69	—	170	24	194
	1940	325	182	507	34	134	4	203	132	335
	1941	351	378	729	26	151	91	243	218	461
Maine 2-1-40	1940	81	—	81	15	20	—	46	—	46
	1941	150	45	195	17	75	2	131	36	167
Connecticut 7-15-40	1940	133	—	133	11	25	1	94	—	94
	1941	326	49	375	36	67	4	175	48	223
Illinois 10-1-40	1940	28	—	28	3	—	1	8	—	8
	1941	347	6	353	20	64	8	184	4	188
Washington 1-13-41	1941	1,001	—	1,001	49	106	—	730	—	730
Vermont 3-1-41	1941	84	—	84	10	18	—	48	—	48
New Jersey 3-15-41	1941	278	—	278	37	57	5	128	—	128
Virginia 4-1-41	1941	72	—	72	16	7	—	47	—	47
New York 11-1-41	1941	179	—	179	5	1	—	6	—	6
Total (All Plans)	1938	108	—	108	18	30	2	58	—	58
	1939	264	25	289	26	69	—	170	24	194
	1940	567	182	749	63	179	6	351	132	483
	1941	2,788	478	3,266	216	546	110	1,692	306	1,998
TOTAL		3,727	685	4,412	323	824	118	2,271	462	2,733

SUMMARY — ALL PLANS — 1938-41 INCLUSIVE

	Number	% of Total
New and Renewal Policies Issued	2,733	68.3
Rejected for Cause	323	8.1
Not Taken by Applicant	824	20.6
Voluntarily Written by Designated Carrier	118	3.0
Total Assignments Completed	3,998	100.0
Assignments Pending (incomplete 12-31-41)	414	
Total Applications and Renewals Handled	4,412	

AUTOMOBILE ASSIGNED RISK PLANS Exhibit B

Exhibit of Premiums Written on Assigned Risks (B.I. & P.D. Combined)

Plan	Effective Date	1938	1939	1940	1941	Total
New Hampshire	5-10-38	4,299.68	9,938.26	22,359.86	25,298.13	61,895.93
Maine	2-1-40	——	——	2,408.02	7,093.92	9,501.94
Connecticut	7-15-40	——	——	7,317.57	15,326.19	22,643.76
Illinois	10-1-40	——	——	353.65	8,375.25	8,728.90
Washington	1-13-41	——	——	——	29,455.36	29,455.36
Vermont	3-1-41	——	——	——	1,474.22	1,474.22
New Jersey	3-15-41	——	——	——	8,483.80	8,483.80
Virginia	4-1-41	——	——	——	6,511.91	6,511.91
New York	11-1-41	——	——	——	311.93	311.93
TOTAL		4,299.68	9,938.26	32,439.10	102,330.71	149,007.75

NOTE: Average 1941 B.I. & P.D. Combined Premiums on Risks Assigned = $51.67.

AUTOMOBILE ASSIGNED RISK PLANS Exhibit C

Exhibit of Administration Costs — 1941

State	Effective Date	1941 Period Covered in Months	No. of Risks Handled	Administration Costs 1941	Average Cost per Risk Handled	Estimated Expenses 1942
New Hampshire	5-10-38	12	729	1,788.54	2.46	1,800
Maine	2-1-40	12	195	790.07	4.05	1,000
Connecticut	7-15-40	12	375	1,346.21	3.59	1,500
Illinois	10-1-40	12	353	3,405.96	9.65	3,500
Washington	1-13-41	11½	1,001	3,000.24	3.00	4,000
Vermont	3-1-41	10	60	492.61	Min.	500
New Jersey	3-15-41	9½	278	974.75	3.50	1,200
Virginia	4-1-41	9	72	(d)	—	(d)
New York	11-1-41	2	179	807.05	4.51	10,000
TOTAL			3,242	12,605.41	3.88	23,500

NOTES:

(a) New Hampshire Costs for 1938-39-40, and Maine Costs for 1940 were absorbed in the Cost of maintaining the Maine Branch of the National Bureau and charged to all carriers, subscribers to that branch.

(b) Connecticut Costs in 1940 were $429.40 assessed to subscribers.

(c) Illinois Costs are for 12 months ending 9-30-41. Costs are comparatively high due to an independent administering office.

(d) Virginia Costs are unobtainable, being absorbed in the costs of the Virginia Automobile Bureau.

(e) 1942 Estimated Costs are based on trends of an increasing number of assigned risks and additional work involved in handling renewals.

AUTOMOBILE ASSIGNED RISK PLANS Exhibit D

Administrative Recommendations Promulgated and in Effect

There is cited below a brief summary of recommendations and rules adopted and put into effect. Managers of all Plans are advised of such rulings in order that Governing Committees and Managers of each separate Plan may consider adopting similar rules and thus insure uniform administration of all Plans.

1. *Records of Applicants for Coverage, by Producer*

All offices maintain a card record of applications by "named producers" and are thus in a position to take action respecting any producer who submits an unusually large number of applicants under the Plan and thus seems to be soliciting assigned risks.

2. *Identification of Assigned Risks on Carriers' Records*

All subscribers have been advised to specially identify assigned risks so that they will be able to comply with special calls for experience.

3. *Two or More Convictions Arising Out of a Single Accident*

The New York Plan has adopted a rule whereby two or more convictions arising out of one accident, occurrence or arrest are to be considered as only a single conviction. The sole exception pertains to two convictions arising out of a single accident, one of which pertains to driving without an operator's license or driving with an illegal registration.

4. *Renewal Assignments*

Upon declination of a designated carrier to issue a renewal policy to an assigned risk for the Maine, New Hampshire and Vermont Plans the applicant is required only to complete a new application form which, accompanied by a single letter from the carrying company under the Plan declining to renew it, is then sent to a new designated carrier for the renewal policy. In similar cases for risks in Connecticut, New Jersey and New York, the applicant is being required to obtain two additional letters of declination if his reassignment is declined by the carrying company. This latter procedure is believed desirable as it forces both the applicant and producer of record to make a real effort to obtain voluntary coverage rather than to take the easy way by remaining in the Plan as an assigned risk.

5. *Physical Disabilities*

(A) The New York Governing Committee has approved the following rules which have been promulgated to all subscribers to the New York Plan:

> Partial or total deafness does not constitute a major physical disability for the purposes of the Plan provided that special equipment is

> installed on vehicles which such applicants will operate and it is understood such applicants operate with restricted drivers' licenses.
>
> Loss or loss of use of part or all of an arm or leg if a member is replaced by an artificial limb, or special equipment on the motor vehicle is provided, and provided the applicant passes a special driver's license test of the State at the request of the designated carrier does not constitute a major physical disability for the purposes of this Plan.
>
> Loss of one eye does not constitute a major disability for the purposes of the Plan.
>
> Loss or loss of use of all or part of two legs, two arms or one arm and one leg shall be considered a major physical disability for purposes of the Plan. Possibly exceptions may be made in special unique cases.
>
> Applicants subject to epilepsy or cardiac or similar conditions may be considered but should submit satisfactory certificates from at least two qualified medical doctors.

(B) The Illinois Governing Committee has ruled (a) that impaired vision or loss of one eye is not a major disability if risk is licensed by the State; (b) impaired hearing is not a major physical disability if risk is licensed by the State; (c) loss of part or all of an arm or leg if a member is replaced by an artificial limb and the applicant passes a special driver's license test given by the State, is not a major physical disability; (d) loss of two arms, two legs or one arm and one leg shall be considered a physical disability.

6. *Letters of Solicitation for Coverage*

The New York Governing Committee has agreed to waive this technical requirement and permit the Manager to assign risks without withholding assignment for missing letters of solicitation if same do not accompany application.

7. *Enemy Aliens*

The Massachusetts Governing Committee has adopted the following rule:

> "In those instances where the Bureau is able to identify an applicant for assignment under the Massachusetts Motor Vehicle Assigned Risk Plan as being an enemy alien, assignment for coverage is not to be made. Such an assignment made unknowingly by the Bureau may be rejected in accordance with the provisions of Rule 4 under Section IV of the Plan."

The New York Governing Committee considered this matter, and after discussion, believed the problem will ultimately solve itself by action of the Federal Government and agreed that no specific resolution be adopted respecting enemy aliens as to the status of applicant under the New York Plan.

Managers of all other plans have been advised of these actions of the Massachusetts and New York Governing Committees.

8. *Convictions Respecting Violations under "Blackout" Laws*

The New York Committee recommended that convictions for such offenses should undoubtedly be reported but that they should not constitute major convictions in connection with the operation of a motor vehicle as cited in Section I, Paragraph 2 of the New York Plan.

9. *Requests for Assignment to a Named Carrier or Specified Type of Carrier*

The New York Governing Committee has unanimously agreed that the Manager must abide strictly by the rules of the Plan and assign risks to designated carriers impartially according to their proportionate premium volume and that he cannot agree to assign any specific applicant to any named carrier or to a carrier of any specific type.

10. *Eligibility of Applicants*

(a) *Non-Payment of Premium*

The Washington Committee has ruled that applicants rejected for non-payment of premium are ineligible for subsequent assignment under the Plan until one year has elapsed.

(b) *Risks Rejected for Cause*

The New York Committee has ruled that an applicant under the Plan rejected for cause, and rejection sustained, is not eligible to reapply for coverage under the Plan until a period of one year has elapsed from date of the rejected application.

11. *Signatures on Letters of Declination Accompanying Applications for Coverage*

The New York Committee has ruled that letters of declination signed by a single salaried employee on behalf of two or more so-called "running mate" companies are not acceptable on behalf of more than one company.

12. *Non-Owners*

The Washington Committee has ruled permitting the carrier to charge twice the *X* rate in cases where it can be found that an applicant ordinarily not owning a car has purchased a car not in operating condition, merely to procure a lower premium charge.

13. *Adjustment of Rates Due to Changes in Assured's Status*

The Washington Committee has adopted a rule permitting carriers to charge proper manual rates in all cases where subsequent to assignment and certification the applicant acquires additional equipment or the nature of his business changes to warrant re-rating.

PREMIUM COLLECTIONS ON PUNCH CARDS

BY

DUDLEY M. PRUITT

In recent years tabulating equipment has developed to the point where it has ceased to be simply a means for assembling statistical data and is now quite satisfactorily adapted to accounting routines. Although commercial accounting has been making increasing use of these developments and is now far advanced along this line, insurance accounting has been rather slow to take it up. This is less understandable because insurance companies were among the first and are among the largest users of this equipment. Possibly our backwardness stems from the fact that we are so familiar with the statistical uses of tabulating equipment that we have it "typed," as Hollywood would put it, for this one role and have failed to see its fundamental versatility.

It would seem, however, that insurance companies could more readily develop punch card accounting than could commercial institutions, because we already have the equipment and a trained personnel to handle it. For many companies the added use can be absorbed without greatly increasing the equipment already in hand, and much advantage can be taken of the naturally close correlation between a company's statistical and accounting functions. Much of one can be made a by-product of the other.

In fact, in an insurance company, statistical and accounting functions are so closely interwoven that it is difficult to know where the one ends and the other begins; as an example, premium and loss distributions are usually treated as statistical, whereas expense distributions are considered accounting, although quite frequently punch cards are used for the expense distribution.

The purpose of this paper is not to discuss the many possible uses that tabulating equipment can be put to in insurance accounting, though to date much on that subject has been left unsaid, but specifically to describe an actual application of the punch card method to premium collections. This has possibly been the subject on which insurance accountants have exhibited more resistance to change than on any other. It is raised for discussion periodically in accountants' meetings and is invariably voted down overwhelmingly, notwithstanding the fact that testimony is always available from a few, more courageous than the others, that experiments had been tried and that, surprisingly, the experiments worked.

It must be admitted, however, that few thoroughgoing experiments have been tried, and that many of the difficulties encountered have not been very adequately met. The writer trusts that in this paper he can demonstrate how the fundamental difficulties have been overcome and can clarify the procedure sufficiently to show that the principles involved will apply under conditions differing from those encountered in his own company.

The punch card system of keeping accounts receivable is a direct outgrowth of the ticket system.

Originally premium entries were posted to agents' ledger sheets item by item, with cash credits applied thereto as received; the balance in this ledger being the total of agents' balances due. This system was fairly acceptable under conditions where agents reported universally on the account current basis, although much difficulty was encountered in recording and keeping track of adjustment items whenever the agent's account current differed from the company record as posted in the ledger. Then too the system was found to be particularly laborious in the casualty business where outstanding balances had to be analyzed by line of business and where the rules governing the over-ninety-day non-admitted asset were applied on an item basis instead of as related to the monthly accounts current. The labor of detailed posting to the ledger added to the expense and inconvenience of the system.

The invention of the abstract system of premium recording made a decided advance possible in premium accounting methods. With little cost an individual collection ticket could now be produced as a copy of the original abstract. These tickets could be sorted and totalled by agents. These totals were posted to the agents' ledger and the tickets were filed in the agents' outstanding premium file. A physical inventory of the tickets would at all times be in agreement with the balance shown in the agents' ledger.

It was now possible to reconcile an agent's account current with the company's entries simply by segregating the items reported. Where the agent reported items not yet entered by the company, or where there were discrepancies appearing between the company and the agent on a specific item, temporary debit and credit cards, made up by hand, were inserted.

Under the ticket system outstanding balances were easy of analysis because the detailed supporting items were compactly filed together.

The development of the ticket system also fitted admirably into the more recent rapid development of business on the so-called billing basis. On this basis agents do not report on accounts current, but rather await a bill from the company for items due to be paid. Usually, too, such agents, instead of remitting monthly in the full amount of the bill, send checks in from time to time during the month as items are paid to them. Obviously a system allowing for the orderly filing by policy number of open items, thus making them easily located and withdrawn upon payment and readily listed for billing, was of decided advantage under these conditions.

The Punch Card Ticket.—A dozen or so years ago it occurred to some adventurer in the business that if this ticket could be made in the form of a punch card much of the time consumed by clerks at adding machines could be eliminated. The hitch here was that nothing but a machine could read punch cards and only numbers could be punched in them. These cards had to be read and handled by collection clerks, bookkeepers and billing typists, and all that could be done with punch cards was to sort and add them.

Accordingly this inventive genius devised the dual card, a horrible invention, as all machine operators will testify.

The dual card was the perfect hybrid of the ticket and the punch card, that is, it was a punch card with the abstract typing reproduced on it by a duplicating process. The dual card could be sorted and added. The adding by machine was of considerable advantage in the establishment of control figures for posting to the agent's ledger and in totalling the outstanding cards to establish the accuracy of agents' balances, and also, in some installations, in making an analysis by line of business. But the sorting function for most of us was grossly inadequate because collection clerks, through habit and convenience, required their files in agents' alphabetical order whereas the machine sorting brought them into agents' numerical order, and rare was the coding system which brought the alphabetical and numerical sequences together.

Some companies, attempting to establish their overdue (over 90 day) premiums by machine from the dual card, listed off items showing the required overdue months. This was fairly accurate, but not conclusively so, the two main difficulties having to do with installment payments and credits. The rule of installment payments is that when one installment is overdue, all subsequent installments are then overdue regardless of date due; and on credits, that no credit, regardless of date, can be used to reduce the overdue figure unless a debit on the same policy (or assured) is also overdue. In other words, credits can be applied only against their corresponding debits. Originally no strictly mechanical method was available for making these two selections.

As for billing, the dual card had definite limitations. An acceptable bill delivered to an agent required the name of the assured listed against each item, as well as certain descriptive information such as the line of business and special designations to call attention to special commission or collection treatment. Agents do not take readily to numbers and codes, making an alphabetical bill practically an essential. Some companies tried listing the items initially on the bill by machine and then reinserting the bill in a typewriter to fill in the additional information. Although this was a moderate time-saver, it was cumbersome, introduced added elements of error, and produced a none-too-good-looking hybrid result. The problem of mechanically selecting the items to be billed (unless the system called for repeated billing of all items, which few systems did), presented difficulties. This was usually done by sorting out the required items and after billing, sorting them back in, agent by agent. All in all, and for good reason, billing by machine was never well received.

And, lastly, the dual card, as usually produced, was a most unhappy device from a mechanical standpoint. In the reproducing process it had to be moistened on one side and then dried, producing a swelling and warp to the cards. Frequently, also, bits of gelatine from the reproducing machine adhered to the card. Both of these hazards caused havoc to machine operation and operators' dispositions.

Key punching also was difficult since each item had to be punched on a card on which the typed information had already been reproduced. Spoiled cards required rewriting by hand, and the punching of collection cards usually had to be maintained as an independent operation from the punching of other statistical cards.

Basically, then, a rather high price was paid for the advantages gained in having punched holes in the old collection ticket. But the advantages were real since much more accurate controls were possible and some speed of handling was gained. All in all the dual card was an improvement over the abstract ticket.

The Alphabetical Interpreted Card.—The more recent developments in mechanical equipment have made it possible to overcome most of the difficulties inherent in the earlier systems discussed.

With the alphabetical punch card and interpreter a very satisfactory system can be developed and has been used in several recent installations. Although most of the equipment needed has been in use for several years, it has taken time and experimentation to develop routines and procedures thoroughly satisfactory for the purposes. The subject is still developing and, no doubt, many improvements in technique are still ahead. It can, however, be stated without hesitation that the alphabetical punch card method of premium accounting is economical, accurate and practical, and, when carefully planned, is a definite improvement over the other systems in use in company accounting departments.

The fundamental requirements which we tried to meet in establishing an acceptable system were roughly as follows:

1. The punching must be made readable (gelatine and chemical processes must go).
2. The punching must be coordinated with the statistical punching of the same item to avoid duplication of effort.
3. The card must show all information needed for normal collection procedures.

4. The billing to agents must be mechanical.
5. The establishment of overdue balances must be mechanical.
6. The balancing of agents' accounts must be mechanical.

Items 1, 2 and 3, above, are related, in that they marked our determination to do away with the dual card which we were then using.

1. *The punching must be made readable.* This was readily accomplished through the use of the alphabetical interpreter which prints on the top lines of the card the information cut into the card. This made the card (without benefit of gelatine reproduction) available for visual reference, and facilitated filing, cash application, and collection review. By eliminating the "prefabricated" dual card it was possible to accomplish requirement 2.

2. *The punching must be coordinated with the statistical punching of the same item to avoid duplication of effort.* Under the dual card system collection punching had to be independent of statistical punching. There are many elements of information common to both, such as policy number, agent's code number, and, frequently, premium, which had to be punched twice, resulting in wasted effort. Clearly, such information as is common should be punched only once. There are, however, many elements which are not common: for example, the collection card requires effective date, the statistical card expiration date; the collection card requires the name of the assured, the statistical card classification and exposure.

When all of the elements required in both cards were assembled, however, we found that we required more columns than are available on the card. It was, therefore, impossible to punch one card with *all* the information on it and reproduce the other from it. This was impossible, also, for another reason. We could not always count on a one-for-one agreement between collection and statistical cards. Where installment payments are involved a collection card is required for each installment; where more than one classification is involved a statistical card is required for each classification.

The "layer cake" card (see figure) answered these problems satisfactorily. In this card, the one card form is in fact several card forms in which common information is placed in the same columns for all, the remaining columns being assigned variously for the various forms, mechanical distinction between the various forms being accomplished by means of a single card code column.

In use, the operator punches the first card for an entry throughout, but on all subsequent cards skips the column fields that are common. By subsequently running the cards through a gang punch the common information is reproduced from the first card of a set to all those which follow.

There were two degrees of communality apparent; information which is common to *all* cards, both collection and statistical, and information common to only one type. The policy number must carry through *all* cards, but the name of the assured is desired only on all collection cards in the set. Two runs through the gang punch under varying set-ups were necessary to accomplish the result.

The premium presented even a third problem of communality. Here a simple one-for-one set-up called for the same premium on both cards, but where installment payments were involved or various classifications the premium might be different for every card. For premiums, then, we inserted a class selector in the gang punch process. The operator punches the premium or not as conditions require. If the premium is to be the same as she has punched on the preceding card, she skips the premium field. The class selector operates for all cards on which the operator has skipped the premium field and fills it in from the preceding card.

We had long felt it would be desirable in statistical work to have, for purely agency results, still a third type of premium card available, which would be independent of the normal statistical card. Congestion in the use of the statistical card had been severe and the increasing amount of diverse information required for both agency statistics and general statistics had considerably cramped our column capacity. We therefore separated the two functions, and inserted a third, or agency card in our "layer cake" set-up which had certain elements common to the collection card, and certain elements common to the statistical card. This very nicely made a bridge between the two original cards contemplated, and required no additional column punching *per se.*

This agency card has opened the door for several other valuable possibilities. By subsequent selected reproduction from this card a punch card expiration file is available which is possible of exclusively mechanical handling. Agents' expiration lists can be run on the tabulator showing the name of the assured mechanically. Special safe-driver-reward expiration cards can be made which can be processed at the end of the thirteenth month for mechanical operation of the reward system, even to the automatic writing on the tabulator of the reward check. The subject of a more widespread use of renewal certificates is active at the moment. It is quite possible that this card could be utilized in some modified form for the machine writing of certificates.

In introducing the "layer cake" card punching routine to our operators we were somewhat concerned lest the complexity (or so it seemed to us) of the routine and the necessary change in punching habits might reduce production and increase errors. We were most pleasantly surprised. Although a period of training for the operators was necessary, it has developed that competent operators master the new method readily. The saving in time made possible by the elimination of duplication has been felt. Prior to the change we punched two separate cards, a collection card and a statistical card. Our collection card did not have any alphabetical information punched on it, nor did it have many other elements of information for which we depended on the reproduced typing of the dual card. We now produce three separate cards, a collection card, an agency card, and a statistical card. We have added the assured's name and many other elements of information, and found it possible to handle an even larger volume of entries than before without enlarging our force of operators.

3. *The card must show all information needed for normal collection procedures.* The most important new element was, of course, the name of the assured. This was achieved naturally with the use of alphabetical equipment. But there were other elements, hitherto not available in the key-punched card.

We had determined from the start not to show commission and net balance due on the punch card. Some installations do show these elements and have found a ready application for the multiplying punch in calculating the commission and in extending the net balance due. But our practices did not seem to warrant any such extension of the system. We had, however, to provide some means whereby items taking commission rates other than normal could be identified. Then, too, frequent items required more complete identification than merely the policy number, name of assured, effective date, line of business, and amount of premium. We, therefore, found it advisable to provide four columns on the card in which standard alphabetical abbreviations could be punched for certain explanations. In these columns standard abbreviations are punched for such items as premiums subject to safe driver reward, long-haul business, audits, endorsements, and commission group for large New York compensation lines, etc. Where more than one such explanatory note is needed, we borrow additional space from the field assigned to the name.

Some question arose as to whether the agent should be shown alphabetically, numerically, or both ways. Collection clerks, who were accustomed to seeing the name of the agent on all items were rather vehement in their insistence on an alphabetical name. There were several difficulties in the way of this, however. Any recognizable system, even with abbreviations, required more card columns than we could conveniently supply, and a numerical code was rather necessary, as well, for ease of sorting and control tabulating. We finally worked out a revised agency coding system which had the advantage of maintaining a constant alphabetical sequence. With the aid of a scientifically developed (not by us) frequency chart, the available code numbers were blocked off alphabetically and the existing agents assigned as they fell. New appointments are interpolated to maintain a strict alphabetical sequence. By the use of this agency code system, all sorting and filing of collection cards becomes mechanical even though the file is in alphabetical order for easy reference by collectors, accountants and clerks. Identification of the agent's name is by reference to the name and address cards of a different color and corner cut, placed at the front of each agent's account.

Another advantage of this coding system has been that agency statistics can be produced mechanically and yet be in alphabetical order for submission to the busy executive.

4. *The billing to agents must be mechanical.* One of the real advantages to be obtained under the new system was the running of monthly bills on the machine. In fact this possibility was the basic reason for the use of an alphabetical punch card system.

With continuous forms, name and address cards for the heading, and the requisite information punched on the cards, the basic elements were available for billing. The problem to be solved was in the selection of items due for billing. It was our intention to run all cards in the billing agents' accounts through the machine without disturbing their order in the slightest, but to have only those items due for billing listed on the bill.

One of our basic difficulties here was the fact that all accounts do not follow the same set of rules. Most brokers and some agents are billed in sixty days, some agents in ninety; a few brokers' accounts require billing of all items regardless of date, except strictly advance items. Another difficulty was that we require all items on short term policies to be billed immediately and items on the installment plan to be billed thirty days sooner than normal items.

Originally we tried predating each individual item with a billing date which was independent of the effective date indicated. The machine was set each month to list all items showing a given billing date or older. This worked satisfactorily enough except that the predating was a decided clerical burden and opened an avenue for more mistakes than we liked.

More recently we have developed a machine set-up which determines all the items to be billed directly from the normal effective date shown on the card. Predating is no longer necessary. Installment and short-term items, however, must be coded with codes indicating that they are installments and short terms. Whether an item is to be billed in sixty or ninety days from effective date is determined by whether or not it follows an agent's name card which has originally been coded as for a sixty- or a ninety-day agent. This coding is done once when the name cards are established and requires no further attention. A holding circuit, set up in the wiring of the plug board, changes the sixty-day selection to a ninety-day selection as soon as a ninety-day coded agent's name card passes the brushes, and holds the ninety-day set-up for all detail cards until the next name card is reached at which time it reverts to the sixty-day set-up unless that name card too is coded for ninety days. Whenever a detail card is reached which contains the special installment code the machine automatically selects for billing an additional month. The short-term code simply causes the item to bill immediately regardless of date.

Our billing is now truly automatic and much more accurately done than we have ever been able to do it before. The clerical time saved over the use of a battery of typists is material, and the bills are produced much earlier in the month than previously.

5. *The establishment of overdue balances must be mechanical.* The time-honored method in the casualty business of producing the overdue balances by hand selection and addition of each item has always been a laborious and inaccurate operation. Nor has it ever been possible to produce with any ease a listing of the detail making up the overdue balances, although such a listing, indicating assureds' names, policy numbers and effective dates would be a valuable record both for audit purposes and as an aid to collection men.

To produce such a list mechanically was naturally an aim. For the normal debit items we encountered little difficulty since they should be listed whenever they are ninety days past their effective dates. *Credit* items and *installments,* however, are more troublesome. As stated in a previous section the rules governing such items are:

a. A credit must never be shown as overdue, regardless of age, unless accompanied by an overdue debit on the same policy.

b. Installments must *all* show as overdue, regardless of due date, if a single installment on the policy is overdue.

Obviously neither of these conditions could be established by a system of precoding, since at the time the item is entered there is no way of knowing how such circumstances will stand at billing time.

Our initial system for overdue listing, like our first billing system, called for a precoded overdue date. This required some hand manipulation in the case of credits and installments which produced the desired results but was awkward and subject to error. Since it is not now in use, there is no need to go into it here.

We are now, however, using an entirely mechanical system for producing these results, dependent for its success on two simple rules of filing. When placing cards in the open file, credits must be filed *behind* debits on the same policy, and installments must be in strict chronological order with the earliest payment date first. Since these are natural filing rules they create no hardship.

The machine is set to list and add all *debits* which show effective dates of ninety or more days past. Whenever such an item has listed, however, a *holding* circuit is set up for the next card following which requires the listing of that next card also if it is a *credit* on the same policy. This listing in turn sets up its holding circuit for the next item which also will list if it is a credit on the same policy, and so on until either the policy number changes or a debit is reached.

In the case of installments, whenever a debit item listing as overdue is also an installment item (sensed by the installment code prepunched on all installments as explained under billing), a second holding circuit is established which requires the listing of all subsequent items on the same policy, whether debits or credits.

Although the plug board diagramming for these circuits is rather involved, the actual operation is perfectly simple, requiring no more than the feeding of the cards through the machine.

6. *The balancing of the agents' account must be mechanical.* The entire open file of cards is run through the machine for the selective listing and totalling of the overdue items. At this same time the machine is totalling *all* cards in another counter and printing the total outstanding for each agent. (Twice a year, for audit purposes, we list *every* item, depending for our overdue record not on whether or not the item has been listed, but on whether or not the premium shows up in the overdue counter.) This establishes a mechanical inventory control of outstanding items which is a marked labor saver over the previous system of adding machine tapes.

We did, however, wish to go a step beyond this and make the entire agents' ledger control a mechanical one. In consequence we substituted a summary punch card system for the agents' ledger. With the use of the summary punch this is a comparatively simple operation. Instead of making postings to the agents' ledger, we merely punch summary cards automatically when the tabulating machine establishes the agents' total figures. Thus when tabulating premium entries (writings) each day for control purposes, we make summary cards for agents' writings. Cash application can be handled the same way. When these summary cards are sorted in with a set of balance cards for the previous month and tabulated, with the writings cards adding to the balance and the cash cards subtracting, the resultant balance is the new balance for each agent which should agree with the balance shown in the inventory taken in the overdue run. If they agree, of course, the account is in balance.

Actually we do not even require a visual checking for agreement, but make the machine demonstrate any lack of agreement. When making the overdue run we are punching automatic summary cards for each agent's inventory total. These cards are sorted in with the ledger control summary cards produced during the previous month before tabulating for the month's control. A counter in the machine is set aside in which any difference shows between the inventory summary card and the ledger new balance. Normally this counter will show nothing. If an amount shows in this counter it is precisely the amount by which that agent's account is out of balance. After the tabulation is complete the operator locates the summary cards for any agent showing a difference, and lists them. Since this list will show the entry dates punched on the cards it is a simple matter then to refer to the original entry listings to locate the error. Usually such errors are the result of miscoding special journals; never yet has it been from a lost card. The inventory summary cards are then used the following month as the old balance cards.

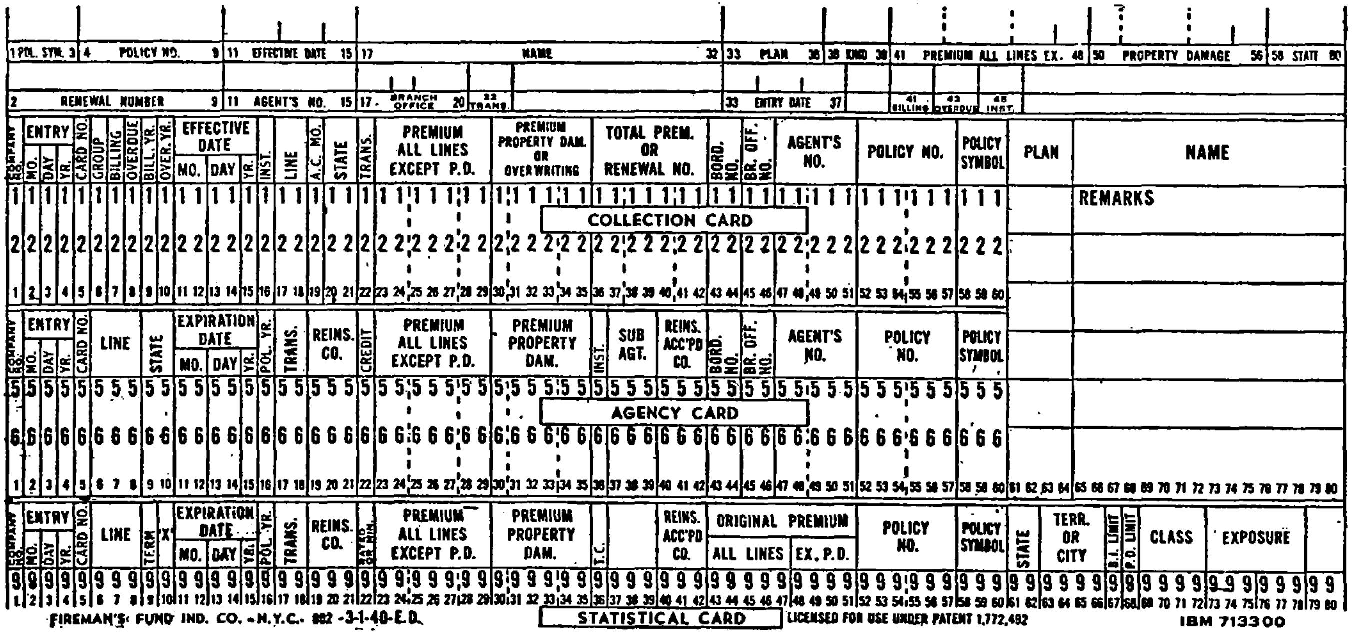
CONCLUSION

The writer has tried here to confine himself to the more general aspects of the system in use. There are, of course, many other minor details in our system which may or may not apply in any installation contemplated by another company. Much variation in detailed requirements is, of course, essential, as company practices vary. The point is that almost any obstacle to the punch card system can be overcome satisfactorily if the will exists to overcome it. And the results obtained have satisfied us that the effort was well worth making.

All in all, we have released considerable clerical labor to more fruitful fields of endeavor, we have speeded up our service, and gained in accuracy. We have more complete and satisfactory records for audit purposes, and have obtained many collateral advantages in the coordination of the accounting and statistical procedures.

While the initial establishment of the system calls for considerable concentrated effort, the actual day-to-day operation is, if anything, simpler than under a manual system.

The writer regrets that this paper comes at such an inopportune time. There was no thought of any such thing as a freezing order on business machines when he undertook to prepare it. Under the circumstances, therefore, many who might be interested in following the matter further must, of necessity, postpone the impulse for the duration of the war. For those, however, who now have the necessary equipment (and it is standard equipment), the application of some at least of the principles outlined here should serve to alleviate a few of the difficulties we are all encountering because of the war-time clerical shortage.


POL. SYM. 3
POLICY NO. 9
EFFECTIVE DATE 15
NAME 32
PLAN 36
KIND 38
PREMIUM ALL LINES EX. 48
PROPERTY DAMAGE 56
STATE 80
RENEWAL NUMBER 9
AGENT'S NO. 15
BRANCH OFFICE 20
TRANS.
ENTRY DATE 37
BILLING
OVERDUE
INST.
COMPANY NO.
ENTRY
MO.
DAY
YR.
CARD NO.
GROUP
BILLING
OVERDUE
BILL. YR.
OVER. YR.
EFFECTIVE DATE
LINE
A.C. NO.
STATE
TRANS.
PREMIUM ALL LINES EXCEPT P.D.
PREMIUM PROPERTY DAM. OR OVERWRITING
TOTAL PREM. OR RENEWAL NO.
BORD. NO.
BR. OFF. NO.
AGENT'S NO.
POLICY NO.
POLICY SYMBOL
PLAN
NAME
REMARKS
COLLECTION CARD
EXPIRATION DATE
POL. YR.
REINS. CO.
CREDIT
PREMIUM PROPERTY DAM.
SUB AGT.
REINS. ACC'PD CO.
AGENCY CARD
TERM
X
PAYRO. OR MIN.
T.C.
ORIGINAL PREMIUM
ALL LINES
EX. P.D.
TERR. OR CITY
B.I. LIMIT
P.D. LIMIT
CLASS
EXPOSURE
STATISTICAL CARD
FIREMAN'S FUND IND. CO. - N.Y.C. - 882 -3-1-48-E.D.
LICENSED FOR USE UNDER PATENT 1,772,492
IBM 713300

THE "LAYER CAKE" CARD

Note: As explained in the text the predated billing and overdue months and years, columns 7 to 10, are now obsolete and not in use in our system, the selection being done entirely from the effective date shown.

RECENT DEVELOPMENTS IN CONNECTION WITH THE SPECIAL FUNDS UNDER THE NEW YORK WORKMEN'S COMPENSATION LAW

BY

ELSIE KARDONSKY

In 1938 Mr. Grady H. Hipp presented a paper entitled "Special Funds under the New York Workmen's Compensation Law,"* wherein he discussed the legislation, history and financial status of the following special New York funds:

1. Second Injury (Special Disability) Fund—Section 15, Subdivision 8.
2. Reopened Case Fund—Section 25-a.
3. Vocational Rehabilitation Fund—Section 15, Subdivision 9.
4. Aggregate Trust Fund—Section 27.
5. Workmen's Compensation Security Funds — Sections 106 to 109j, inclusive.

Particular attention was called to the financial impairment of the Reopened Case Fund, as indicated by an examination of the Insurance Department as of December 31, 1936, and to the deficit incurred by the Aggregate Trust Fund at the end of 1937 due to insufficient interest earnings. The problems of improving the financial condition of these special funds were presented as requiring the attention of the insurance carriers.

Considerable study has since been given to correcting the situation with regard to the Reopened Case Fund and the Aggregate Trust Fund. The developments that have taken place in this connection will be outlined in this paper. In addition, brief reference will be made to the present status of the other special funds listed above.

Reopened Case Fund

The Reopened Case Fund, created under Section 25-a of the New York Workmen's Compensation Law, assumes the liability for medical costs and compensation payable to claimants in cases reopened more than seven years after the date of injury or death and more than three years after the date of last payment of compensation.

An examination of the Fund as of December 31, 1936 showed that assets of only $201,703 were available against liabilities for known cases of $658,498 and estimated liabilities for probable future reopened cases of $2,126,601. As of December 31, 1938, the assets were $77,480. The Fund was rapidly being depleted due to the inadequacy of the income from con-

* *Proceedings of the Casualty Actuarial Society,* Volume XXIV, May 20, 1938.

tributions of $300 in each no dependency death case award to meet current losses.

A permanent increase in income was needed to provide for current loss payments and incurred liabilities. Moreover, in view of the constant increase in the number of compensable reopenings, various brakes on the outgo of the Fund, especially with respect to unwarranted claims, were necessary if the Fund was to be maintained in a solvent condition. In order to restrict awards to meritorious claims, it was essential that the Fund be adequately defended. It was also necessary to place some limitation on the period during which cases could be reopened.

The program for restoring the solvency of the Reopened Case Fund will be discussed under the following headings:

(1) Defense of the Fund
(2) Statute of Limitations
(3) Increase of Contributions

(1) *Defense of the Fund*

Under Section 25-a the financial liability for cases reopened after a given period was transferred to the Special Fund, but the defense of the Fund against such cases was the responsibility of the employers or insurance carriers originally liable for the payment of compensation.

The lack of financial incentive often resulted in inadequate defense of the Fund. It was therefore likely that awards were made in some cases which might have been declared non-compensable had the full facts been obtained by the defense. To remedy this situation, the carriers in cooperation with the self-insurers undertook, in 1938, the organization of a special unit, known as the Special Funds Conservation Committee, for the defense and conservation of the Reopened Case Fund.

An amendment to Section 25-a, effective April 10, 1939, gave this committee legal status by providing for the designation of the Attorney of the committee as the representative of the Fund in proceedings brought to enforce claims against the Fund. The Conservation Unit is now operating as the only agency defending the Fund.

(2) *Statute of Limitations*

In addition to undertaking the defense of claims against the Reopened Case Fund, the Special Funds Conservation Committee gave serious study to other aspects of rehabilitating the Fund.

The existing law placed no limitation on either the time within which a claim could be reopened or on the amount of back compensation payable to a successful claimant. The Fund was thus faced with the liability for some cases where the great lapse of time after the original accident made it difficult, if not impossible, to obtain files, hospital and medical records, or witnesses necessary to check employees' claims.

Severe drains on the resources of the Fund were often made by awards for large amounts of back compensation. Because of the difficulty of determining the actual condition of the claimant for the past period, and because the claimant's failure to take earlier action is an indication that disability may not have been very serious, a limitation of retroactive compensation was deemed proper.

The following statute of limitations was adopted:

(a) No award against the Special Fund shall be made retroactive to a date more than two years prior to the date of the application.

(b) For cases in which compensation payment was made, and also cases which would have been compensable if disability extended beyond seven days, no award against the Special Fund may be made after a lapse of 18 years from the date of injury or death and also a lapse of 8 years from the date of last payment of compensation.

(c) Cases previously disallowed or otherwise disposed of after a hearing, and cases where disability lasted seven days or less and for which no determination was made of the merits, may not be reopened after seven years from the date of accident. (Such cases are thus barred from being reopened under Section 25-a.)

The first two limitations were incorporated in Section 25-a by Chapter 686, Laws of 1940, together with amendments involving contributions payable into the Fund. The last limitation was incorporated in Section 123. It was provided that the limitations on reopening would not become effective for 180 days from July 1, 1940, the effective date of the new law.

(3) *Increase of Contributions*

The financial status of the Fund as of December 31, 1938 indicated that sufficient funds would not be available to meet loss payments in 1939 unless additional income was obtained. The loss payments for 1938 were more than $150,000 while the income from awards was less than $50,000. The assets available for 1939 were only $77,480.

Pending the determination of the statute of limitations, it was agreed, as a temporary solution, to levy an assessment of $150,000 against the carriers and self-insurers in addition to the amounts already provided for by law. Provision for this assessment was included in Section 25-a, effective April 10, 1939, concurrently with the amendment involving the defense of the Fund. Payments were to be made in proportion to indemnity losses paid by the carriers during the fiscal year ended June 30, 1938. The assessment rate was determined to be 0.48% of such indemnity payments.

The assessment, by law, was to constitute an element of loss for the purpose of establishing compensation rates and necessitated a law amendment factor of 1.003 in the July 1, 1939 rate structure. The carriers were instructed to treat the assessment as a loss, rather than as a tax item, in their records, that is, in their Loss Ratio Data and Casualty Experience Exhibits, so that proper recognition would be given to this item in future rate revisions.

In developing the principles for a more permanent plan which would place the Fund on a solvent basis, consideration was given to various proposals, including provisions for an actuarial reserve basis, for a "current loss" or "pay-as-you-go" basis and for a middle course or modified reserve basis. As a practical matter, in order not to place too heavy a burden on the carriers, a modified plan was adopted to provide funds for current loss payments and for known liabilities incurred:

(a) In no dependency death cases, the contribution to the Reopened Case Fund was increased from $300 to $1,000. It was further provided that if the actual cost of a death case involving dependency was less than $2,000 exclusive of funeral expense (that is, less than the sum of all contributions payable in a no dependency death case), the difference between such actual cost and $2,000 would be payable into the Reopened Case Fund. No contributions would be payable into the Fund for dust disease cases arising under Article 4-A, however, in view of the limited compensation benefits provided for all such cases.

These amendments were effective as respects cases for which the date of accident was July 1, 1940 and thereafter.

(b) In each permanent partial schedule case award, a payment of five dollars was to be made to the Reopened Case Fund at the time of the original award. Such payments were applicable to accidents occurring during the seven year period beginning July 1, 1940.

(c) A special assessment of $150,000 was to be levied in 1940, in a similar manner as levied in 1939, to provide immediate funds. Contributions due under items (a) and (b) above would not be immediately forthcoming in view of the necessary time lag in making awards.

The financial plan adopted above was incorporated in Section 25-a, along with the statute of limitations and several other amendments, by Chapter 686, Laws of 1940.

The annual income of the Fund under the amended law, exclusive of the special assessment of $150,000 in 1940, was estimated at the time to be $275,000, apportioned as follows:

1. $140,000 from no dependency death cases. This estimate was based upon the average number of awards in such cases in calendar years 1937 to 1939.
2. $50,000 from low cost dependency death cases. This estimate was

determined from cases reported under the Unit Statistical Plan for policy years 1934 to 1936 and included an adjustment for the experience of self-insurers.

3. $85,000 from permanent partial schedule cases. Special Bulletin 202 of the Department of Labor showed an average of 17,000 awards made for such types of cases in calendar years 1936 and 1937.

The contributions from death cases were expected to provide sufficient funds for current loss payments, estimated to be about $150,000 a year on the basis of disbursements made in calendar years 1937 to 1939. (See Table C attached, which presents a summary of the cash transactions of the Fund since its beginning.) The total income from the assessments of $5 in permanent partial schedule cases was expected to liquidate over a period of seven years the deficit accrued in connection with awards made against the Fund in the past.

In the July 1, 1940 rate revision a law amendment factor of 1.008 was included to give effect to the special assessment of $150,000 and to the increased costs for death and permanent partial cases because of payments into the Fund. The special assessment, which amounted to 0.48% of the carriers' compensation payments for the fiscal year ended June 30, 1939, was to be included as a loss item in experience records as was the assessment levied in 1939.

Examination of the Reopened Case Fund

One of the new provisions of Section 25-a required that the Commissioner of Taxation and Finance furnish the Industrial Commissioner with an annual statement of the Reopened Case Fund, covering income and disbursements and the balance of moneys at the beginning and end of each fiscal year. A copy of such statement was to be transmitted to the Superintendent of Insurance who was required to examine the Fund every two years, verify the receipts and disbursements and ascertain the liability of the Fund with respect to awards which had been made against it.

Accordingly, the financial condition of the Fund was examined by the Insurance Department as of June 30, 1940. A statement of the receipts and disbursements of the Fund for the fiscal year ended June 30, 1940 as determined by the insurance examiner is shown below:

TABLE A

RECEIPTS AND DISBURSEMENTS — JULY 1, 1939 TO JUNE 30, 1940

Receipts

No dependency death awards.....		$ 44,365.40
Special assessments		4,089.19
Interest—on bonds	$ 1,975.00	
—on awards	40.09	
Total interest		2,015.09
Total receipts		$ 50,469.68
Ledger assets June 30, 1939.......		184,003.86
		$234,473.54

Disbursements

Awards—compensation	$144,779.07	
—medical	30,286.06	
Total disbursements		$175,065.13
Balance—ledger assets June 30, 1940		$ 59,408.41

The assets and liabilities as of June 30, 1940 are also shown below:

TABLE B

Assets

	Ledger	Non-Ledger	Admitted Assets
Cash	$ 13,408.41		$ 13,408.41
Bonds (par value)...............	46,000.00		46,000.00
Interest accrued—on bonds		$ 629.57	629.57
—on awards*.....		14.35	14.35
No dependency death awards*.....		1,938.46	1,938.46
Special assessment**.............		150,000.00	150,000.00
Total	$ 59,408.41	$152,582.38	$211,990.79

Liabilities

Reserve for cases on which awards have been made and charged against the Fund—compensation	$764,776.00	
—medical	98,104.00	
Total		862,880.00
Deficit		— 650,889.21
		$211,990.79

* Award made prior to June 30, 1940 and received subsequently.

** Assessment effective July 1, 1940 and collected in full subsequently, was approved April 22, 1940.

In determining the liabilities of the Fund, only those cases on which awards had been made and charged against the Fund on or prior to June 30, 1940 were considered, in accordance with the provisions of Section 25-a. Reserves for probable life pension cases and for dependency death cases were computed on the basis of the Survivorship Annuitants' table of mortality with interest at 3½% per annum.

At the same time the examiner reviewed all cases pending before the Industrial Board on which no determination had been made on or prior to June 30, 1940. There were 153 such cases with an estimated cost of $476,648 for compensation and $51,913 for medical, or a total estimated cost of $528,561.

Some of the findings and recommendations of the examiner, as contained in his report to the Insurance Department, are summarized below:

1. It was recommended that the reserve for outstanding losses be ascertained at least annually and be included in any statement of condition of the Fund.
2. The assets of the Fund as of June 30, 1940 were inadequate to discharge the future cost of cases on which awards had been made against the Fund on or prior to June 30, 1940.
3. It was recommended that provision be made for the cost of known cases pending on June 30, 1940 as a liability of the Fund.
4. It also seemed desirable to give consideration to the accumulation of a contingency reserve to meet the potential liability for cases where injuries occurred prior to June 30, 1940 and which would be reopened in the future and become actual charges against the Fund.
5. It was recommended that more complete records of income and disbursements and of all claims be maintained in order to facilitate the preparation of financial statements and the determination of the liabilities of the Fund as required by law.

After publication of the examiner's report, the question of the adequacy of funds for the next fiscal period was considered. A statement of the cash position of the Fund as of December 31, 1940 showed that the income for 1940 did not greatly exceed that for 1939. This indicated that very little income was derived from the 1940 law amendments. It was expected that the effect of such amendments would soon emerge to a much greater extent and that a total income from awards of $100,000 to $150,000 would be realized in 1941. (The actual net receipts from awards in 1941 were $161,459.)

The loss payments for calendar year 1940 were considerably higher than those for 1939 and exceeded the previous estimate of annual disbursements. This amount included large retroactive payments for a few cases. It was believed that the increase may possibly have been due to the fact that a large number of cases still pending in 1938 when the Conservation Unit began to function were finally decided upon in the latter part of 1939, and payments therefor began in 1940. It was not expected that the disbursements for 1941 would show a further increase or exceed $200,000 because of the statute of limitations.

The assets of $147,809 as of December 31, 1940 plus the expected income for 1941 seemed sufficient to meet the obligations for 1941, but to assure that no possible cash deficit would occur, an assessment of $100,000 was levied by Chapter 376, Laws of 1941. The assessment rate was 0.31% of the compensation loss payments of each carrier for the fiscal year ended June 30, 1940. A law amendment factor of 1.002 was included in the revised rates effective July 1, 1941 to provide for this item.

With respect to the outstanding liabilities on cases for which awards had been made, it was believed that the $5 assessment on schedule award cases would, because of the increased industrial activity at the present time, be able to liquidate the accumulated deficit.

Cases Open and Pending on April 24, 1933

Section 25-a contains a provision that such section does not apply to any case open and pending on April 24, 1933 (the date of the original enactment of Section 25-a) nor does it apply during the pendency of an appeal.

In view of such provision, the Industrial Board ruled, on February 2, 1940, that any case which was open and pending on April 24, 1933 and subsequently closed, could not thereafter be reopened against the Reopened Case Fund. Awards for all such cases reopened were to be charged against the employer or carrier originally liable. There were some doubts, however, as to the correctness of this interpretation, and since appeals from such awards against the carriers had been taken and were still pending, the Board requested clarification of these points by the Appellate Division.*

The court decision (July 2, 1941) indicated that the statement that the provisions of Section 25-a shall not "apply during the pendency of an appeal" was not intended to bar for all times the payment of compensation by the Fund to claimants in such cases. The purpose of the provision was to prevent inroads upon the Fund pending final determination of an appeal. In the event of an award against the Fund as a result of an appeal, the compensation covering the period of appeal was chargeable against the Fund.

With respect to the application of Section 25-a to cases open and pending on April 24, 1933, it was stated that the provision was intended to prevent an immediate drain upon the Fund at its inception and precluded only cases that were then open and pending or in which an application to reopen had been made. If such cases were later closed by awards and subsequently reopened, awards would be made against the Fund, provided the time limitations were met.

In view of this decision, about thirty-seven cases formerly chargeable to the carriers were transferred to the Fund. These involved an estimated

* Samuel Riddle *vs.* General Ice Cream Corporation.

potential liability of $334,397. In approximately one-third of the cases awards have already been made and payments must now be made from the Fund. The majority of cases are still being controverted, and many may never be charged against the Fund. In any event, however, a substantial additional liability has been added to the Fund.

To provide for this additional liability, it has been agreed to increase the present $5 assessment on each schedule award case to $10 effective on such cases with date of accident July 1, 1942 or thereafter. Such assessments will be discontinued with respect to cases with date of accident on or after July 1, 1947. An over-all law amendment factor of 1.001 will be included in the rate revision for July 1, 1942 to give effect to this amendment which became law in April, 1942.

Conclusions

Sufficient time has not yet elapsed to determine whether the 1940 law amendments will achieve the objectives for which they were designed: (1) to provide adequate income for current loss payments, (2) to eliminate over a period of seven years the existing deficit on known liabilities, and (3) to curtail the losses of the Fund by various limitations.

On the basis of the figures for calendar year 1941, it appears that previous estimates of the annual income resulting from such amendments will be realized. In the first six months of 1941, the net income, exclusive of the special assessment, was $64,908; in the second six months, $98,680. If the latter figure is doubled, an income of at least $200,000 is indicated for 1942.

When the full effect of the increase of contributions in no dependency death cases develops, the anticipated income of at least $140,000 from this source should be reached. Of the 147 payments to the Fund in 1941 for no dependency death cases, only eighty-four were on the $1,000 basis. The remainder were on the $300 basis for accidents occurring prior to July 1, 1940.

There is a considerable time lag in realizing income from dependency death cases under $2,000, but there should be a gradual rise in income from this source. Certain modifications in the expected income will result, however, from the following two amendments to the New York Compensation Law relating to payments in death cases:

(1) An amendment to Section 16, effective July 1, 1941, providing for the use of a minimum wage of $75 a month in the calculation of death benefits to widows and children; and

(2) An amendment to Section 27 providing for the payment to the Aggregate Trust Fund of an additional amount equal to 6% of the present value of each case on all awards for accidents occurring on or after July 1, 1941.

Both of these provisions will increase the cost of death cases and, hence, reduce the contributions to the Fund from low cost dependency cases. It has been estimated that the first amendment will reduce the income from this source by 20%.

Previous estimates of future loss payments and of outstanding liabilities will also require modification because of the recent decision involving cases open and pending on April 24, 1933. The effect of the transfer of such cases to the Fund is reflected to a very small extent, if at all, in the calendar year figures for 1941. The loss payments for 1941 did, however, show a drop from the previous year. It is expected that the income from schedule award cases, which has been increased from $5 to $10 per case for accidents occurring on or after July 1, 1942, will be adequate to eliminate the deficit on outstanding liabilities.

Since the Fund has been in existence for a comparatively short time, it is not possible to predict with any degree of certainty what the future losses will be. It is likely that the rate of reopening will increase in the future as the provisions of the law become more widely known to possible claimants. On the other hand, the statute of limitations and the excellent work done by the Conservation Unit should curtail the increase in liability to some extent.

The condition of the Fund should be closely watched in the near future to determine the adequacy of the income on the basis of the actual experience developed, including the new estimates of outstanding liabilities which will be made by the Insurance Department. If it is found, after taking into account new developments which may not yet be reflected in the experience, that future receipts and disbursements are out of line with previous estimates and result in an increasing deficit in the Fund, further amendment to Section 25-a may be necessary. At such time consideration could be given to providing for the undisclosed liabilities of the Fund. The accumulation of reserves for such liabilities would decrease the deficit of the Fund and would prevent the recurrence of situations requiring further amendments to Section 25-a to provide for the increased losses of the future.

TABLE C

Statement of Cash Transactions—Reopened Case Fund (Section 25-a)

	INCOME					
Period	Net Income from No Dependency Death Cases	Income from Other Contributions	Interest + Profit or Loss on Investments	Total Income (2) + (3) + (4)	Loss Payments	Cash Plus Bonds at Par Value at End of Period
(1)	(2)	(3)	(4)	(5)	(6)	(7)
4/24/33	..	..	..	..	..	$250,000
4/24/33 to 12/31/33	$ 4,500	..	$ 3,287	$ 7,787	..	257,787
1934	25,200	..	9,297	34,497	$ 17,930	274,354
1935	35,400	..	10,704	46,104	71,106	249,352
1936	37,500	..	13,685	51,185	98,834	201,703
1937	44,700	..	13,102	57,802	89,704	169,801
1938	47,859	..	11,514	59,373	151,694	77,480
1939	40,919	$149,793 (a)	2,010	192,722	145,822	124,380
1940	51,404	150,000 (a) 410 (b) 713 (c)	2,029	204,556	181,127	147,809
1941	100,250	100,000 (a) 55,205 (b) 6,004 (c)	2,129	263,588	173,568	237,829

NOTES: (a) Special assessment levied on all insurance carriers.
(b) $5 contributions levied in permanent partial schedule cases.
(c) Contributions from low cost dependency cases.

Aggregate Trust Fund

Section 27 of the Compensation Law provides for the deposit into the Aggregate Trust Fund of the present value of awards for death benefits and for compensation in certain types of permanent disability cases, whereupon all further liability for such benefits is assumed by the Fund. In the event of a subsequent modification of an award by the Industrial Board, the necessary adjustment in deposit is made. All computations of present values are based on specified mortality and remarriage tables and interest rate. Liability for medical treatment is retained by the carrier.

Under the original provisions of the section, deposits were required or permitted at the discretion of the Industrial Commissioner. Effective July 1, 1935, however, after the occurrence of numerous receiverships in casualty companies which affected the compensation of many claimants, especially those who were entitled to long term benefits, such deposits were made mandatory in the case of stock and mutual carriers.

This amendment resulted in a tremendous increase in the receipts of the Fund. At the same time, there was a decline in the interest rate on those types of securities in which the Fund was permitted to invest, and the interest earnings were less than the 3½% rate fixed by law as a basis for commutation of awards. The deficiency in interest earnings, combined with a small loss from mortality and remarriage experience, resulted in a deficit in the Fund for calendar year 1937. In view of the investment situation, it was expected that the deficit would increase in the future as long as a 3½% rate was retained in the law.

Since the insurance carriers in general were unable to earn 3½% interest on their investments at this time, it was believed desirable to reduce the interest rate used in computing awards which were payable into the Aggregate Trust Fund and any of their other compensation liabilities. Section 27 was therefore amended by Chapter 512, Laws of 1939, to provide for the computation of awards payable into the Fund on the basis of interest at 3% where the accident occurred on or after July 1, 1939. The Actuary of the Fund indicated, however, that a still lower rate was probably necessary to make up the accrued deficit of the Fund.

Concurrently with the foregoing amendment, other amendments to Section 27 were enacted to correct various inequities of the existing law with respect to awards payable into the Aggregate Trust Fund. The most important are given below:

1. In third party cases payment of an award into the Fund shall be postponed for a stated period if the claimant has not yet started third party action, or until the termination of any such third party action brought by the claimant.

Prior to this amendment, payment of the full award may have been required pending or previous to a third party action, with no subsequent adjustment of the award made, even where a successful action decreased the liability of the Fund. Now the carrier has an opportunity to determine whether action will be taken against the third party and is given the benefit of the decreased liability if a recovery has been made.

2. Where an award to the Fund is reaffirmed after appeal by the carrier, the carrier shall pay simple interest on the amount of the original award at 3% per year (up to the date of payment into the Fund), plus simple interest at 6% per year on payments accrued to the claimant, the latter interest to be paid to the claimant.

   Heretofore the carrier was required to pay simple interest at 6% per year on the entire amount of the award and thus was unduly penalized since the claimant was entitled to receive 6% interest only on accrued compensation. Under the new provision, the carrier pays the claimant the 6% interest due and reimburses the Fund for its loss of interest up to the date on which payment is made.

3. The carrier shall be entitled to the unexpended balance of an award for permanent disability, other than for a definite number of weeks, plus simple interest at 3% per year, in the event a subsequent award is made for death arising out of such injury.

   Heretofore in such cases, the carrier was required to pay the full value of a death award and received no credit for the unexpended balance of the previous award.

4. Where an award for permanent partial disability for a definite number of weeks has been paid into the Fund, if the injured employee dies prior to the end of such period, the carrier shall be entitled to the present value of the unexpended disability benefits not payable to beneficiaries, computed on the basis of annuities certain with interest at 3% per year.

5. Awards for permanent partial disability for a definite number of weeks shall be computed on the basis of annuities certain with interest at 3½% per year for accidents prior to July 1, 1939 and at 3% per year for accidents occurring thereafter.

   Previously the section did not specify the use of annuities certain in such computations.

The first two of the above amendments were effective on July 1, 1939 regardless of the date of accident. The third and fourth amendments applied only to accidents occurring on or after July 1, 1939.

The long term cases reported for policy year 1937 under the Unit Statistical Plan were revalued on a 3% interest basis to determine the effect of the change in the interest rate. An increase of about 5% in the cost of death and permanent total cases was indicated, which necessitated an over-all law amendment factor of 1.007 in the rate structure effective July 1, 1939.

While the change in interest rate provided for a material increase in income, it was found to be inadequate in view of the continued low rate of interest earned by the Fund. The total net interest earnings of the Fund, expressed as a percentage of the mean amount of cash and bonds, exceeded 4% in the four calendar years preceding 1935. In 1935 they dropped to 3.39%, and subsequently have remained below 3%.

The following tables supplement Tables H and I presented in Mr. Hipp's paper and show the increasing deficit of the Fund due to insufficient interest earnings:

TABLE D

FINANCIAL SUMMARY (ON REVENUE BASIS) OF AGGREGATE TRUST FUND*

Year Ended Dec. 31st	Income	Expenditures	Assets	Liabilities	Surplus or Deficit (—)
1941	$2,946,791	$2,988,772	$12,519,721	$12,749,161	—$229,440
1940	2,810,407	2,863,566	10,919,090	11,106,549	— 187,459
1939	2,492,472	2,564,196	9,282,622	9,416,921	— 134,299
1938	2,841,870	2,861,150	7,768,219	7,830,794	— 62,575
1937	3,014,090	3,113,813	5,794,568	5,837,863	— 43,295

TABLE E

EXCESS (OR DEFICIENCY) IN INTEREST EARNINGS OF THE AGGREGATE TRUST FUND*

Calendar Year	Interest Earned**	Interest Required to Maintain Reserve (Estimated)	Excess Interest Earnings (Deficiency Indicated by Minus Sign)	Increase in Surplus (Decrease Indicated by Minus Sign)
1941	$283,026	$396,802	—$113,776	—$41,981
1940	288,216	348,049	— 59,833	— 53,160
1939	204,549	296,624	— 92,075	— 71,724
1938	180,274	239,202	— 58,928	— 19,280
1937	95,355	155,441	— 60,086	— 99,724

* These tables have been taken from the State Insurance Fund Actuary's memorandum of May 18, 1942, "Re: Reports of the Aggregate Trust Fund Covering the Last Six Calendar Years."

** Interest earned including gain or loss from change in difference between book and amortized value of bonds, and including profit or loss on maturity of bonds.

The following analysis of the changes in the surplus of the Fund indicates that the gains from mortality and remarriage experience have exceeded the losses from these sources during the last five calendar years. It will be noted that income from interest paid by carriers as shown in item (4) will be eliminated in the future by the provision calling for payments of 3% interest instead of 6% on awards which have been affirmed upon appeal. Further reduction in income will result from the amendments providing that the carrier shall be entitled to the unexpended balance of awards for disability when the claimant dies.

TABLE F

Analysis of Changes in Surplus of Aggregate Trust Fund During Calendar Years 1937, 1938, 1939, 1940 and 1941*

	CALENDAR YEAR				
	1937	1938	1939	1940	1941
(1) Excess or deficiency (—) in interest earnings over interest required to maintain reserve............	— $60,086	— $58,928	— $92,075	— $59,833	— $113,776
(2) Gain or loss (—) from mortality and remarriage experience under annuities to dependents in death cases	— 45,818	21,183	13,227	— 4,717	67,509
(3) Gain or loss (—) from mortality experience under annuities on permanently disabled lives...........	— 991	— 1,563	— 1,601	7,084	— 1,360
(4) Estimated amount of interest paid to Aggregate Trust Fund by insurance carriers less portion thereof paid by Fund to claimants.......	10,579	15,338	14,370	11,513	9,446
(5) Gain or loss (—) from miscellaneous sources	— 3,408	4,690	— 5,645	— 7,207	— 3,800
(6) Total increase or decrease (—) in surplus	— $99,724	— $19,280	— $71,724	— $53,160	— $ 41,981

* This table has been taken from the State Insurance Fund Actuary's memorandum of May 18, 1942, "Re: Reports of the Aggregate Trust Fund Covering the Last Six Calendar Years."

In order to establish the Fund on a solvent basis, further amendment to Section 27 was necessary. It was agreed to provide for additional payments of 6% on all awards for which the accidents occurred on or after July 1, 1941 until the surplus reached 1% of the total outstanding loss reserves (valued as of December 31 next preceding). The income from the additional 6% was considered to be the equivalent, over-all, of the difference between the commuted values of awards on 3% and 2.5% interest bases. It was not practical at this time to provide for a statutory change in interest rate to 2.5%, since the tables incorporating the 3% interest rate adopted in 1939 had not yet been printed. (These tables were subsequently published in Special Bulletin No. 207 by the Department of Labor.) Moreover, the further reduction in interest rate would have the effect of further increasing all payments involving lump sum settlements which are commuted on the same basis as awards to the Fund.

The amendment to Section 27 was incorporated in Chapter 325, Laws of 1941. Its effect was evaluated on the basis of the same data used in computing the previous change in interest rate, and it was determined that an over-all law amendment factor of 1.008 was required in the July 1, 1941 rate revision.

This amendment should satisfactorily correct the financial condition of the Aggregate Trust Fund unless there is an unexpected decrease in interest earnings or a loss from mortality and remarriage experience in the future.

Second Injury Fund

Section 15, Subdivision 8, of the New York Workmen's Compensation Law provides for the payment by the Second Injury Fund of compensation to employees who have incurred permanent total disability through the loss of a limb or an eye after having previously sustained the loss of another major member of the body. Such payment is to be made after the employer or insurance carrier has completed the payment of the specific benefits provided by law for loss of the second member. No provision is made for medical payments by the Fund.

The income of the Fund is derived mainly from contributions of $500 in each no dependency death case and includes fines imposed under Section 52 of the Compensation Law for the conviction of employers who have failed to secure compensation, as well as other miscellaneous fees.

An examination of the Fund by the Insurance Department as of December 31, 1936 showed the assets to be $992,167 and the liabilities incurred for known cases to be $1,222,782. In addition, the examiner estimated liabilities of $630,000 for awards which might be made in the future in cases involving accidents which occurred on or prior to December 31, 1936.

In view of the sizeable assets on hand and the adequacy of the annual income of the Fund to cover current loss payments, and because of the more pressing need to rehabilitate the Reopened Case Fund, no action has been taken to reduce what has been indicated as a deficit of this Fund.

The defense of the Fund, while not provided for by statute, has been voluntarily undertaken by the Special Funds Conservation Committee since 1938. The Committee has been notified of comparatively few cases to date.

A summary of the cash transactions of the Second Injury Fund for calendar years 1933 to 1941, as taken from reports of the Department of Labor, is given below:

TABLE G

STATEMENT OF CASH TRANSACTIONS OF THE SECOND INJURY FUND

Year Ended Dec. 31st	Income from No Dependency Awards	Other Income*	Loss Payments	Income — Loss Payments (2) + (3) — (4)	Cash + Bonds at Par Value
(1)	(2)	(3)	(4)	(5)	(6)
1933	$87,700	$33,800	$78,097	$43,403	$ 926,102
1934	85,596	30,658	90,245	26,009	952,111
1935	75,100	35,642	92,260	18,482	970,593
1936	78,200	39,842	96,468	21,574	992,167
1937	82,100	40,498	90,103	32,495	1,024,662
1938	89,766	49,797	92,397	47,166	1,071,828
1939	76,799	54,547	90,037	41,309	1,113,137
1940	77,473	62,520	89,010	50,983	1,164,120
1941	71,175	51,911	94,522	28,564	1,192,684

* Includes interest, profit or loss on investments and miscellaneous fines and fees.

It will be noted that there has been a steady rise in the assets of the Fund due to the accumulation of the excess of income over loss payments.

The financial statement as of December 31, 1941 indicates a surplus of $259,092 on the basis of assets of $1,501,011, which include bonds at amortized values instead of par value, and liabilities of $1,241,919. The liabilities consist of reserves for 99 outstanding cases of $1,200,187 and reserves for contingencies of $41,732.

In the determination of liabilities as of December 31, 1936, the insurance examiner included as liabilities additional reserves of $630,000 for awards which might be made in the future in cases involving accidents which had already occurred. It had been determined that an average time of 3.025 years elapsed between the date of accident and the date on which the case was finally classified as one of permanent total disability falling under the provisions of this section of the law. These liabilities added considerably to the indicated deficit of the Fund.

In view of the increase in the assets of the Fund and the relative stabilization of the liabilities since 1936, there is some question as to whether the Fund can be considered to be deficient.

Prior to 1934 the Fund acquired on the average six new cases net per year, after deducting cases terminating because of death or for other reasons. Since then, however, for a seven year period, cases have been dropping out at a rate which has on the average offset the rate of acquisition of new cases. There were ninety-nine outstanding cases at the end of 1934, ninety-eight at the end of 1936, and ninety-nine at the end of 1941. The reserves for outstanding claims as of December 31, 1941 differed little from those set up as of December 31, 1936.

Since the Fund has been in existence for twenty-five years, it would appear that the experience of the last seven years, which showed a stabilization of the number of active claims after a previous steady rise, would be indicative of the expected loss rate for the future. It seems doubtful whether additional reserves for as large an amount as previously set up are required, since the present rate of acquisition is practically offset by the rate of dropping out of cases. There is no certainty, of course, that similar conditions will continue in the future.

Vocational Rehabilitation Fund

The Vocational Rehabilitation Fund, created under the provisions of Section 15, Subdivision 9, of the New York Workmen's Compensation Law, is financed by contributions of $500 in each no dependency death case.

The following types of payments are made from this Fund:

(1) Expenditures for maintenance in an amount not to exceed $10 a week for any injured workman who is undergoing rehabilitation or vocational training.

(2) Expenses of tuition, supplies, artificial appliances, transportation, etc. for such employees.

(3) Administrative expenses of the Bureau of Vocational Rehabilitation of the State Education Department.

(4) Expenditures up to $50,000 a year for studies by the Industrial Commissioner of means and methods of eliminating dust and other occupational disease hazards. These expenditures were originally authorized for a period of five years beginning with July 1, 1936 by Chapter 888, Laws of 1936. This period has recently been extended for an additional year until June 30, 1942, by Chapter 274, Laws of 1941.

The income of the Fund in the past was considered to be more than adequate to meet its needs. In fact, in view of the large surplus, it had been proposed to reduce the contributions to the Fund when the question of increasing the contributions to the Reopened Case Fund arose.

In recent years, however, the annual disbursements of the Fund for the various expenses of rehabilitating employees, inclusive of the substantial administrative expenses of the Bureau of Rehabilitation, have been in excess of the annual income. This situation, combined with the transfer of moneys to the Industrial Commissioner, has resulted in a considerable reduction in the assets of the Fund, as shown in the following table:

TABLE H

Statement of Income and Disbursements of the Vocational Rehabilitation Fund*

Balance in the Fund (including investments) — July 1, 1937.... $ 700,202.20

Income

Fiscal Year Ended June 30th	Awards	All Interest and Profit on Investments	Total	
1938	$ 86,963.74	$ 30,264.44	$117,228.18	
1939	84,500.00	34,700.15	119,200.15	
1940	78,391.01	29,477.88	107,868.89	
1941	67,988.30	31,144.92	99,133.22	
Total	$317,843.05	$125,587.39	$443,430.44	443,430.44
				$1,143,632.64

Disbursements

Fiscal Year Ended June 30th	Adminis-tration	Tuition and Supplies	Maintenance	Transferred to Labor Department	Total	
1938	$ 93,191.90	$ 21,059.83	$ 32,605.16	$ 41,000.00	$187,856.89	
1939	111,333.31	24,011.72	36,879.35	43,000.00	215,224.38	
1940	108,441.66	22,666.46	29,258.50	40,000.00	200,366.62	
1941	99,255.02	34,886.29	32,045.81	40,000.00	206,187.12	
Total	$412,221.89	$102,624.30	$130,788.82	$164,000.00	$809,635.01	809,635.01
Balance						$ 333,997.63

[*] These figures were obtained from statements furnished by the Bureau of Rehabilitation.

It may be of interest to note that a bill was introduced in February, 1941 providing for the extension to ten years of the period during which the Industrial Commissioner could withdraw up to $50,000 a year for silicosis studies. It is evident from the foregoing table that such a provision would have wiped out the surplus of the Fund in a short time.

Additional transfers of funds will be made to the Industrial Commissioner, however, up to July 1, 1942 and a further decrease in the assets can be expected. Moreover, if the other expenditures continue to exceed the income at the same rate as heretofore, the Fund may be depleted in a few years. It is important, therefore, that the condition of this Fund receive attention, particularly with respect to the substantial disbursements made.

Workmen's Compensation Security Funds

Separate Stock and Mutual Workmen's Compensation Security Funds were established in 1935 to provide for the payment of compensation to employees and to the Special Funds in the event that the carriers liable for such compensation are unable to meet their obligations because of insolvency.

Article 6A of the New York Workmen's Compensation Law (previously numbered Article 5) requires the stock and mutual companies to pay into these Funds 1% of their net premiums written during calendar year 1934 and each year thereafter. Payments by the stock carriers are to be suspended when the total net income of the Stock Fund less its liabilities reaches a minimum amount of $2,300,000 or 5% of the New York workmen's compensation loss reserves of all stock carriers as of December 31st next preceding, whichever amount is the greater. The Mutual Fund must reach a minimum amount of $700,000 or 5% of the total loss reserves of mutual carriers, whichever amount is the greater.

The following table shows the status of these Funds as of March 1, 1942, as reported by the Superintendent of Insurance who administers the Funds:

WORKMEN'S COMPENSATION SECURITY FUNDS
ON MARCH 1, 1942

Income and Disbursements

	Stock Fund	Mutual Fund
Tax receipts of 1% of net premiums written for calendar years:		
1934	$ 193,323	$ 91,366
1935	284,981	119,250
1936	306,058	151,129
1937	344,624	187,730
1938	337,876	171,941
1939	339,562	188,616
1940	330,114	194,761
1941	341,663	224,404
Total	2,478,201	1,329,197
Interest Received (net)	159,814	73,404
Gross Income	2,638,015	1,402,601
Expenses Paid (including rqfund)	7,499	3,222
Net Income	$2,630,516	$1,399,379

Assets

	Stock Fund	Mutual Fund
Cash in Banks	$ 372,250	$ 270,770
United States Bonds (at cost)	2,258,266	1,128,609
Fund Totals	$2,630,516	$1,399,379

No compensation benefits have been paid by either of the Funds as no insurance carriers have become insolvent since the establishment of the Funds. There are no known liabilities at the present time.

The Insurance Department has not as yet determined the total compensation loss reserves as of December 31, 1941. Preliminary figures obtained from the Casualty Experience Exhibits as submitted to the Compensation Insurance Rating Board indicate loss reserves for the stock carriers of about $60,000,000 and for the mutual carriers, almost $30,000,000. The goal for the Stock Fund will therefore be about $3,000,000, and for the Mutual Fund, about $1,500,000. It can be seen from the foregoing table that each Fund may reach its required minimum within the next year or two.

THE COMPREHENSIVE INSURANCE RATING PLAN

BY
CHARLES J. HAUGH

The Comprehensive Insurance Rating Plan became effective in the days when Douglas MacArthur was vaguely identified as a retired army man located somewhere in the Philippine Islands. At that time the Plan was officially adopted as the "Comprehensive Rating Plan for National Defense Projects." Under existing conditions I have been encouraged to drop the qualifying phrase in the title of the Plan and shall refer to it simply as the Comprehensive Insurance Rating Plan. Before considering the Plan itself, however, it is essential that there be some consideration of the developments leading up to its introduction.

In 1940 the Federal Government took steps to expand the armed forces of the country. This involved the construction and operation of facilities required for the training and equipment of such expanded forces. The War Department adopted the practice of letting contracts on a cost-plus-a-fixed-fee basis and specifically provided that there should be included as an item of cost the premiums for such forms of insurance as the contracting officer approved as reasonably necessary for the protection of the contractor.

In the latter part of 1940 the War Department promulgated regulations pertaining to insurance to be carried by contractors and sub-contractors operating under cost-plus-a-fixed-fee contracts. Those regulations prescribed the qualifications of insurance carriers authorized to write such insurance, the forms of coverage to be afforded, and the limits of coverage; and required the contractor to secure four bids for insurance, two of which were to be from stock companies and two from mutual companies. A further condition provided that in evaluating the bid of a dividend-paying company the average rate of dividend paid over the past ten years should be computed and used as the anticipated dividend to be deducted from the deposit premium. Since the major portion of the premiums on these projects is for workmen's compensation and is subject to regulation requiring all carriers to use the same rates, the effect of this requirement was to exclude all non-participating stock casualty companies from writing any of this business.

The contracts involve large undertakings and the casualty insurance premiums, particularly those for workmen's compensation insurance, are very substantial. Undoubtedly the government officials entrusted with the duty of passing upon the various items of cost incurred under these contracts were concerned with the reasonableness of the amounts included in stock company quotations for acquisition and general administration services, and realized that the dividends of mutual casualty companies are due, in a great measure, to a saving in these two items of expense. This was a particularly bitter pill for the stock casualty companies, since for years they have advocated a program of graded reductions in allowances for acquisition and general administration expenses and their failure to secure general approval of that program has been due largely to the opposition of the mutual companies.

The stock companies requested the Under-Secretary of War to afford them an opportunity to present for his consideration a program designed to make insurance of stock companies available at the lowest possible cost on United States Government defense construction contracts let on a cost-plus-a-fixed-fee basis. That program contemplated a reduction in the expense provisions sufficient to make the guaranteed cost of stock insurance comparable with the anticipated net cost of mutual insurance. The Under-Secretary granted the request and appointed an Advisory Committee on Insurance to consider the program. The members of that committee are:

George S. Van Schaick, Vice President, New York Life Insurance Company, *Chairman*

Ralph H. Blanchard, Professor of Insurance, Columbia University

Solomon S. Huebner, Professor of Insurance, University of Pennsylvania

George K. Gardner, Professor of Law, Harvard Law School

The program was considered at a conference with the Advisory Committee on February 11, 1941, but no agreement could be reached with respect to a satisfactory solution of the problem.

Subsequently plans reflecting reduced expense provisions for "United States Government Defense Projects for which compensation and employers' liability insurance is approved by or recommended by the United States Government or any agency thereof" were introduced in a number of states. The Rates Committee of the National Council on Compensation Insurance adopted a resolution providing for a separate classification to be established for these risks, and further providing that the expense portion of the classification rates normally applicable to such operations should be "a"-rated. Separate rates were adopted by stock and non-stock companies. The stock companies generally adopted a discount of 20% which contemplated a maximum total production cost allowance of 5% of the reduced premium. The mutual companies generally adopted a discount of 10%. The discount adopted by the mutual companies, when taken in conjunction with their dividends, produced premiums slightly less than those of stock companies and still placed them in a position to under-bid the stock companies on substantially all of these risks in regulated states. There was some variation from state to state with respect to the special type of plan adopted for rating national defense projects, and as the great majority of such plans are still in effect there is included in Appendix A of this paper a statement setting forth the details of such special plans for those states in which they are in effect.

This effort of the stock companies to remedy an impossible situation reacted to the benefit of the War Department in that it resulted in a reduction of their insurance cost but it did not in any way improve the position of the stock companies. By this time it was generally recognized by almost all interested parties that the situation was an extremely unhealthy one. The War Department itself recognized the unsound condition which existed and Major Reese Hill (then Lieutenant Hill) developed a plan which effectively removed the competitive element and at the same time assured to the Government insurance at cost. That plan known as "The War Department Rating Plan" was endorsed by the Advisory Committee on Insurance and was adopted by the carriers for application generally to projects for which compensation and liability insurance is approved by or recommended by the United States Government or any agency thereof. As adopted by the insurance companies it is known as The Comprehensive Insurance Rating Plan. The details of the Plan itself are set forth in Appendix B. In essence the Plan is a form of retrospective rating with a maximum premium equal to 90% of the standard premium increased to provide for state taxes. The premium under the Plan is equal to the sum of

1. A fixed charge which corresponds to the basic premium under the standard Retrospective Rating Plan and which contains provision for losses in excess of the maximum and for expenses of general administration, payroll audit, and inspection. The fixed charge contains no provision whatsoever for production cost nor for taxes.
2. Losses incurred increased 12% to provide for unallocated claim adjustment expenses.
3. Actual allocated claim expenses incurred for all forms of coverage.
4. A provision for state premium taxes through the medium of a tax multiplier to be applied to the sum of the three foregoing items.

Table of Fixed Charges

Analysis of the table of fixed charges indicates that while there is no margin for profit, the values on the whole appear to be adequate. There is set forth below a table showing the indicated excess or deficiency in the fixed charges basing the charge for losses in excess of the maximum upon the table of excess pure premium ratios used in developing the existing standard Retrospective Rating Plan and assuming the necessary expense provisions to be 4% of the standard premium for general administration and payroll audit expenses and 2% of the standard premium for inspection and accident prevention expenses regardless of size of risk.

(1)	(2)	(3)	Ratio of Losses in Excess of Allowance in Maximum Premium		(6)	(7)
Standard Premium	Fixed Charge	Loss Allowance in Maximum Premium $\frac{.900-\text{Col. }(2)}{1.12}$	(4) To Losses (from Table of Excess Pure Prem. Ratios)	(5) To Prem. Col. (4) × .60	Gross Charge for Excess Losses Col. (5) × 1.12	Indicated Excess (+) or Deficiency (—) in Fixed Charge Col. (2) — [Col. (6) + .060]
$ 5,000	.370	.473	.476	.286	.320	—.010
10,000	.290	.545	.351	.211	.236	—.006
25,000	.240	.589	.268	.161	.180	—
50,000	.184	.639	.182	.109	.122	+.002
100,000	.125	.692	.101	.061	.068	—.003
150,000	.115	.701	.088	.053	.059	—.004
200,000	.105	.710	.074	.044	.049	—.004
250,000	.097	.717	.060	.036	.040	—.003
300,000	.090	.723	.042	.025	.028	+.002
350,000	.075	.737	.020	.012	.013	+.002
400,000	.065	.746	.001	.001	.001	+.004
450,000 to 700,000	.065	.746	—	—	—	+.005
700,000 and over	.063	.747	—	—	—	+.003

The indicated excess of .003 for risks of $700,000 premium and over, and of .005 for risks developing premiums of from $450,000 to $700,000, actually constitute the only provision for losses in excess of the maximum, since the table of excess pure premium ratios used in this analysis indicates no insurance charge required for the loss allowance in the maximum premium. Similarly, in the case of risks of $400,000 the insurance charge of .001 for losses in excess of the maximum actually is inadequate, and here again the apparent excess of .004 is more properly construed to represent a part of the insurance charge. For the smaller premium sizes the indicated deficiency in the fixed charge is appreciable. However, it may be contended with some merit that this is compensated by the fact that in calculating the maximum premium, 90% of the full standard workmen's compensation premium is used, whereas in calculating the fixed charge the standard workmen's compensation premium is first discounted 10% in lieu of applying experience rating. From this it may be argued that the latter premium is the "true standard premium" for the workmen's compensation portion and that the use of the undiscounted workmen's compensation premium in the above analysis in calculating the charge for losses in excess of the maximum premium, should be recognized as equivalent to using a maximum in excess of 90% of the standard. On this line of reasoning a lower insurance charge for losses in excess of the maximum would be developed and, consequently, the analysis would show a more favorable balance for contingencies.

Loss Modification Factor

The factor of 1.12 which is applied to incurred losses corresponds to the loss conversion factor as used in the standard Retrospective Rating Plan and is equivalent to an allowance of 7.2% of the standard premium, assuming an expected loss ratio of 60%. While workmen's compensation rates normally contemplate 8% of the standard premium for total claim expenses, it should be noted that allocated claim expenses are added to modified losses under this Plan. Consequently, an allowance of 7.2% for unallocated claim expenses only, appears to be adequate. For automobile bodily injury liability the rates normally contemplate 6.1% of the standard premium for unallocated claim expenses and that figure related to the permissible loss ratio of 55.4% produces an indicated factor of 1.11%. However, for automobile property damage liability the rates normally contemplate 9.8% for unallocated claim expenses and this figure in conjunction with the standard permissible loss ratio of 51.7% produces an indicated factor of 1.19. Assuming the ratio of bodily injury to property damage liability premiums to be three to one, an average factor of 1.13 would be indicated for automobile bodily injury and property damage liability combined. For liability other than automobile, the rates normally contemplate a provision of 7.5% for unallocated claim expenses. This provision on the basis of a permissible loss ratio of 51% indicates a factor of approximately 1.15.

The Plan does not provide for applying the loss modification factor to allocated claim expenses. The permissible loss ratios cited above for the several liability lines include allocated claim expenses, and consequently there is some deficiency in the allowance for unallocated claim expenses arising out of the fact that the loss modification factor is applicable only to losses and not to the allocated claim expenses. This may be partially offset by the provision for including allocated claim expenses on workmen's compensation as well as on the liability lines. Admittedly, allocated claim expenses represent a relatively small proportion of the total claim expenses on workmen's compensation insurance. On the other hand, the workmen's compensation hazard represents the major portion of the risk on projects written under this Plan.

The provision for claim adjustment expenses appears to be adequate if it be assumed that the inclusion of allocated claim expenses on workmen's compensation is sufficient to absorb the apparent deficiency in the provision for unallocated claim expenses on the liability lines.

Table of Tax Multipliers

The table of tax multipliers which is made a part of the Plan, has been so developed as to provide for the State premium tax and in addition to provide 0.8% on workmen's compensation premiums and 0.3% on premiums of other lines of business for the maintenance of rating boards and bureaus. Ordinarily, the provision for the maintenance of rating boards and bureaus is included in the item of inspection. The inclusion of these allowances in the tax multiplier makes up the apparent deficiency in the provision for inspection and accident prevention in the fixed charge.

In addition to the State premium tax, provision is also made for taxes levied on other than a premium basis for the maintenance of Industrial Commissions such, for example, as the assessment of the New York Industrial Commission which is levied on indemnity losses, the assessment of the Maryland Industrial Commission which is levied on payrolls, and the assessment of the Kansas Industrial Commission which is levied on claims. In each of these instances the amounts of these special taxes are added to the premium before application of the tax multiplier. Strictly speaking, this procedure is not proper as it reduces the amount available for losses in the maximum premium. The proper procedure would be to modify the Plan to provide that the maximum premium is equal to 90% of the standard premium increased by any special taxes and the total so obtained increased by application of the tax multiplier. There is no provision in the tax multiplier for social security taxes nor for miscellaneous licenses, taxes and fees.

The determination of the premium under the Plan could be greatly simplified by the use of a single tax multiplier applicable to all lines within any one state. In the great majority of states the difference in tax multiplier is brought about by a difference in the provision for the maintenance of rating boards and bureaus and in these states the use of the workmen's compensation tax multiplier on liability lines will not seriously affect the final premium, since the difference amounts to only one-half of 1% of the liability portion of the premium and that in turn represents a very small proportion of the total premium. This simplification appears desirable even though it may be found necessary to use separate multipliers by line in those few states in which there is a substantial difference between the tax rate applicable to workmen's compensation and that applicable to other lines.

General Comment on Rating Values

It cannot reasonably be argued that the premiums produced under the Plan are inadequate, but it is apparent that carriers will have to operate with maximum efficiency, as no margin of profit has been provided. There is no definite provision in the Plan to provide for the cost of reopened cases or for incurred but not reported losses. Additional losses from both of these sources must be expected and they must be provided for either through a reserve or by deferring final settlement under the Plan for a sufficient period of time beyond the date of completion of the project to eliminate the possibility of any delayed reporting of losses and to reduce to a minimum, if not to eliminate, the possibility of any reopened cases.

Commissions

The Plan departs radically from standard practice in the casualty insurance business in that no allowance of any kind is included in the premium for the payment of any commissions. The regulations of the governmental bodies providing for the use of the Plan also provide for the selection by the cost-plus-a-fixed-fee contractor of an insurance adviser who is paid directly by the contractor and whose remuneration is expressed as a percentage of the standard premium developed under the Plan all in accordance with the terms of the prescribed Insurance Service Agreement entered into by the insurance adviser and the contractor. The remuneration to be paid the insurance adviser under the regulations of the Bureau of Yards and Docks of the Navy Department differs somewhat from that developed under the regulations prescribed by the other departments. The War Department, the United States Maritime Commission and the Federal Works Agency have adopted the same scale. The two scales of remuneration are set forth below. In each case the remuneration is based upon the standard premium for workmen's compensation and all liability coverages combined less 10%.

	Charge Payable Adviser Expressed as Percentage of Discounted Standard Premium	
Discounted Standard Premium	War Department, Maritime Commission and Federal Works Agency	Bureau of Yards and Docks
First $ 10,000	7.5%	7.5%
Next 40,000	4.0	4.0
Next 50,000	2.0	2.0
Next 400,000	1.0	1.0
Next 500,000	1.0	0.5
Over 1,000,000	1.0	0.25

Since the Plan contains no provision whatsoever for commissions, the insurance carrier is neither in a position nor under obligation to pay a commission to any producer or to any countersigning agent.

Joint Rating Committee

The Plan eliminates any necessity for bids for insurance and permits the contractor to select his insurance carrier, provided that carrier complies with the qualifications established by the Government. Therefore, it is essential that all carriers use the same rates in determining the standard premium. Since the Plan provides for combining workmen's compensation, automobile bodily injury and property damage liability, and general liability coverages into a single rating; since in the great majority of states none of these forms of coverage, other than workmen's compensation, is subject to regulation; and since workmen's compensation is not subject to regulation in all states, it is necessary to provide for the establishment of a uniform schedule of rates to be used by all carriers in applying the Plan. In order to accomplish this objective a Joint Rating Committee has been established. That Committee comprises three stock companies representing the Association of Casualty and Surety Executives and three mutual companies representing the American Mutual Alliance. The companies represented on this Committee at the present time are as follows:

American Employers Insurance Company
American Lumbermen's Mutual Casualty Company
American Mutual Liability Insurance Company
Globe Indemnity Company
Liberty Mutual Insurance Company
Travelers Insurance Company

The Committee has elected Mr. William Leslie, General Manager of the National Bureau of Casualty and Surety Underwriters to act as chairman.

The Committee establishes rules and rates to be used in determining the standard premium under the Plan and files those rules and rates with the proper government officials for their approval. It is the point of contact between the government officials and the various company ratemaking organizations and in this capacity submits its recommendations both to the Government and to the ratemaking organizations for consideration. In anticipation of the possible approval of the Plan for use in all states, the Joint Rating Committee has established the manual rules and rates for each form of coverage coming under the Plan for all states and has submitted them to the appropriate officials of the Government. These manual rules and rates which are enumerated below have already been approved for application to projects of the following divisions of the Government:

War Department
Bureau of Yards and Docks of the Navy Department
Federal Works Agency
United States Maritime Commission

Workmen's Compensation

The manual rules and rates of the National Council on Compensation Insurance have been established as the basis for determining the standard premium for workmen's compensation insurance for the District of Columbia, for the territories of Alaska and Hawaii, and for all states in which private carriers may write such insurance excepting those states enumerated below:

Arizona
California
Delaware
Louisiana
Massachusetts
Minnesota
New Jersey
New York
North Carolina
Pennsylvania
Texas
Virginia
Wisconsin

For these states the Joint Rating Committee has established as the basis for determining the standard premium the manual rules and rates approved or established by the public officials charged with the duty of approving or establishing workmen's compensation rates.

It is specifically provided that experience rating shall not be employed, but in lieu thereof, and in further recognition of hazard differences, the following rule has been adopted:

> "For the purpose of determining the amount of the 'fixed charge' under the Comprehensive Insurance Rating Plan, the standard premium for workmen's compensation insurance shall be discounted 10% before applying the appropriate percentage as prescribed in Table I of the Plan." (See Appendix B.)

In actual practice, any attempt to apply the Experience Rating Plan in determining the standard premium would lead to endless difficulties. In the non-regulated states there is no rating organization established to assemble the experience and rate the risk. In many instances the projects are conducted by contractors who have had no previous experience in the state in which the project is located and, consequently, would not be eligible for experience rating. Projects are undertaken frequently by a group of contractors as joint venturers, and under a strict interpretation of experience rating rules this would constitute a new risk not eligible for experience rating. This particular difficulty could be circumvented by providing for the use of a modification based upon the arithmetic average of the modifications of the individual contractors involved, but that procedure has obvious defects and in all probability would, or at least could, be objected to as improper in the event that the resulting modification should be a debit. Furthermore, these projects generally are on a far greater scale than and differ materially from the normal operations conducted by the contractors involved and it is doubtful whether an experience modification reflecting the normal operations of the contractor is indicative of the experience which may be incurred on them. In the light of these conditions and in recognition of hazard differences which exist on these projects, the Committee adopted the rule providing for a 10% discount and the elimination of experience rating.

Inasmuch as the provision for expenses is already fixed at a minimum amount as set forth in the analysis of the fixed charges, it is provided that no discount which may be provided for in any of the manual rules to reflect a reduction in expense, shall be applicable in determining the standard premium.

Soon after the Plan became effective it was recognized that the use of average rates for each form of coverage, if practicable, would result in a substantial saving to the carrier, the contractor, and the Government, and would eliminate difficulties and delays due to differences of opinion respecting classification assignment of payrolls. It was recognized that average rates, if used, would have to be developed separately for each individual risk. Not infrequently complete specifications are not available at the inception of construction projects and in many instances are necessarily revised materially during the course of construction. Similar conditions exist on some operation projects but probably to a much more limited extent. The Joint Rating Committee in considering this matter adopted a resolution recommending to the various rating organizations that they permit the use of average rates on operation projects for which they are furnished the necessary data to develop average rates, provided both the carrier and the governmental department affected agree to their use. The rating organizations and supervising officials of the states in which the Plan is effective have adopted this recommendation, except the States of California, Colorado, Delaware, Pennsylvania and Texas.

Employers' Liability and Voluntary Compensation Insurance

The manual rules and rates of the National Bureau of Casualty and Surety Underwriters have been established as the basis for determining the standard premium for employers' liability insurance for the States of Mississippi, Oregon and Washington, and for voluntary compensation insurance for the States of Oregon and Washington.

In only one instance to date has any question arisen respecting voluntary compensation rates in any other monopolistic state fund state. In this case the contractor qualified under the State Compensation Act as a self-insurer and then sought voluntary compensation coverage. As no rating organization had established rates for this coverage the Joint Rating Committee recommended that the rates be agreed upon between the carrier and the governmental department affected and the risk was handled on this basis.

Automobile Bodily Injury and Property Damage Liability Insurance

The manual rules and rates of the National Bureau of Casualty and Surety Underwriters, subject to the modifications set forth below, have been established as the basis for determining the standard premium for automobile bodily injury and property damage liability insurance for the District of Columbia, for the territories of Alaska and Hawaii, and for all states except the following:

Louisiana
Massachusetts
North Carolina
Texas

Subject to the same modifications, the manual rules and rates used as the basis for determining the standard premium for automobile bodily injury and property damage liability insurance for the foregoing states have been established as the rules and rates promulgated or approved by the public officials empowered by statute to promulgate or approve such rates. For the States of Illinois, New Hampshire, New York, Oklahoma, Virginia and Washington, the manual rules and rates of the National Bureau of Casualty and Surety Underwriters are those filed with and approved by the State officials having jurisdiction.

It was recognized by the Joint Committee that the conditions under which operations are required to be conducted on these projects would make it at least extremely difficult and probably impossible to secure all of the necessary detailed information required to classify all of the automobile operations strictly in accordance with the provisions of the manual. In recognition of this fact, the Committee established a single classification for commercial automobiles, a single classification for private passenger automobiles, and a single classification for non-ownership liability based upon payroll. The modifications of the manual rules and rates are as follows:

1. All commercial automobiles are rated as Medium Class 5 regardless of the class and load capacity to which such commercial car would ordinarily be assigned; provided, however, that such automobiles are rated as Medium Class 4 in these states in which Class 5 is not in effect.

2. All automobiles classified as private passenger automobiles under the manual are rated as Class B. In those jurisdictions in which private passenger cars are also rated by symbols W, X and Y, all such cars are assigned to symbol W.

3. In lieu of the rates appearing in the manual for non-ownership bodily injury and property damage liability, standard limits rates applicable to this coverage are $0.075 per $1000 of payroll for bodily injury liability, and $0.05 per $1000 of payroll for property damage liability, these rates to apply to the total payroll on the project.

4. All automobiles owned by the Federal Government and furnished for the contractor's use on a project and all automobiles hired or purchased under rental purchase contracts are classified and rated the same as automobiles owned by the contractor. Hired automobiles other than those hired under a rental purchase contract are rated in accordance with the rules and rates prescribed in the manual.

5. Neither the Experience Rating Plan nor the Automobile Fleet Plan discount nor any other individual risk rating plan is applicable, but in lieu thereof, and in consideration of the reduced hazards on these risks, the manual rates, including the rates set forth above, are subject to a uniform discount of 50%.

General Liability Insurance

The manual rules and rates of the National Bureau of Casualty and Surety Underwriters have been established as the basis for determining the standard premium for general liability insurance for the District of Columbia, for the territories of Alaska and Hawaii, and for all states except the States of Louisiana and New York. For Louisiana the manual rules and rates of the Louisiana Casualty and Surety Rating Commission and for New York the manual rules and rates as approved by the New York Insurance Department, have been established as the rules and rates to be used for determining the standard premium for those states. As in the case of automobile bodily injury and property damage liability, it is provided that neither the Experience Rating Plan nor any other individual risk rating plan shall be used, but in lieu thereof, and in consideration of the reduced hazards, all manual rates are subject to a uniform discount of 50%.

It is further provided that for those classifications in the manual which are subject to "a"-rating, the rate to be used shall be obtained from the Joint Rating Committee. Average liability rates also may be obtained for application to operation projects for which average workmen's compensation rates are to be applied.

Period of Insurance

The Plan provides that "the insurance shall be continuous and concurrent until completion of the project or operation" unless the project or operation is of indefinite duration in which event the insurance under the Plan is restricted to a period of twenty-four months. Under this provision of the Plan a project or operation of definite duration is insured for the entire period and is rated on the basis of such period regardless of the length of time involved. The restriction to a period of twenty-four months applies only where the duration is indefinite. In such cases in the event that the project or operation continues for a period of more than twenty-four months, the insurance is renewed and the Plan is applied as to a new project.

Where a project or operation extends beyond twelve months any changes in manual rules and rates are reflected in determining the standard premium to the same extent as would be the case if the risk were insured under an annual policy; and any rate changes resulting from law amendments become effective in the same manner as on regular business.

States in Which Plan Is Applicable

The Plan is applicable in the great majority of states, although in certain instances some modifications in the Plan have been made. Those states in which the Plan is not applicable or in which some modification of the Plan has been made are enumerated below:

Arizona

The Plan was submitted to the Industrial Commission for approval but up to the present time no action has been taken on the filing; consequently, it is not in effect in this State.

California

In California the Insurance Commissioner in passing upon the Plan ruled that workmen's compensation insurance could not be combined with other lines for rating. The Plan as approved for application to California workmen's compensation risks is substantially the standard Plan aside from the fact that no other lines may be combined with workmen's compensation. The standard Plan may be applied separately to the automobile and general liability lines combined.

Massachusetts

The Plan has been disapproved by the Insurance Commissioner of Massachusetts.

Mississippi

The Insurance Commissioner of Mississippi has ruled that the War Department Insurance Service Agreement is illegal and may not be used. Inasmuch as that agreement is entered into by the insurance adviser and the assured, and as the insurance carrier is not a party to it, the ruling apparently has the effect of prohibiting Mississippi agents from acting as insurance advisers under the Plan. The Insurance Commissioner has ruled further that all policies written under the Plan "must be countersigned by a regularly licensed resident agent, who shall receive the full and customary commission on same when the premium is paid. This requirement must be complied with on all such insurance heretofore or hereafter written." Presumably the intent of this ruling is to require stock companies to pay the standard scales of commissions normally payable on business not written under the Plan. The countersignature law does not apply to mutual companies; consequently, the ruling does not apply to them and they are free to use the Plan in Mississippi. Since the Plan contains no provision whatsoever for commissions, it is obvious that no carrier could possibly afford to pay any commission on this business. Consequently, enforcement of the Commissioner's ruling will prevent stock casualty companies from writing any of these projects in the State of Mississippi and will prohibit Mississippi agents from acting as insurance advisers on any of the projects.

Texas

In the State of Texas the Board of Insurance Commissioners is charged under the law with the duty of establishing rates and not merely approving them. The Board has promulgated its own plan entitled "War Department Emergency Insurance Rating Plan." The Plan is substantially the same as the Comprehensive Insurance Rating Plan, but includes a provision requiring the insurance adviser to be a licensed local recording agent or a licensed solicitor under the Texas statutes and setting forth the details of the contract to be entered into between the insurance adviser and the assured.

Governmental regulations pertaining to all expenditures in connection with cost-plus contracts require approval of each item of cost by governmental officials. Consequently, the Comprehensive Insurance Rating Plan Endorsement necessarily contains a provision for approval by the appropriate official of the Federal Government of all elements entering into the determination of the premium under the Plan. Question has been raised in several jurisdictions regarding the propriety of the State supervising authority approving a plan which appears to delegate rate approval authority to an official of the Federal Government. This particular difficulty has been eliminated by a definite statement to the effect that the federal governmental officials approve for those states the manual rules and rates as established by the proper State supervising authorities, and in some instances, as in the case of Delaware, Pennsylvania and Texas, by incorporating such a statement in an endorsement to be attached to the policy.

Explosion Hazard

Some of the projects to be insured under the Plan include risks on which there is a definite explosion hazard, such as projects for the operation or for the construction and operation of shell loading plants, explosives manufacturing plants, etc. The Plan contains specific provision for an increase in the fixed charge in the case of projects presenting an abnormal hazard by reason of the fact that they require the handling of explosives or dangerous chemicals. Approval of any increase in the table of fixed charges is, of course, required by the Boards or Bureaus having jurisdiction, and the regulations of the governmental agencies provide that bids shall be called for if such increase exceeds 2% of the standard premium.

Up to the present time many, if not all, of the contracts have provided for the construction and operation of explosives manufacturing plants by the cost-plus-a-fixed-fee contractor. It is possible under the Plan to combine the construction and operation as a single project and the insurance carrier is thereby given a limited measure of relief, inasmuch as the combination of construction and operation premiums results in an increased maximum premium and to that extent affords the carrier protection against catastrophe. In many instances completed units on these projects are put into operation while construction is still going on at other portions of the project and this is another sound reason for combining the construction and operation of the project for rating purposes under the Plan.

The 2% additional charge allowed for the abnormal hazard on these risks is inadequate in the light of current reinsurance quotations. In the present reinsurance market a charge of 2% of the standard premium is made for insurance of $1,000,000 in excess of $100,000 for any one accident, provided such loss is also in excess of the maximum premium under the Plan. In many instances, these operations are conducted in locations far removed from congested areas and in states where the workmen's compensation benefits are such that the probability of a single accident resulting in a loss in excess of $100,000 is somewhat remote. Since on some of these operations the standard premium runs into very substantial figures, ranging up to $500,000 and over, it is obvious that a reinsurance contract which requires that the maximum premium, amounting to 90% of the standard premium, be exhausted and then provides that the reinsurer participates only on those losses in excess of $100,000 on any one accident, does not afford the direct-writing carrier very generous coverage for his 2%.

Admittedly, carriers wish protection against this catastrophe hazard regardless of how remote the probability of loss may be, for no carrier writes a sufficient volume of this class of risk to accumulate an adequate fund to absorb catastrophe losses. It appears desirable, if not essential, to give serious consideration either to the establishment of some better market for reinsuring the hazard or to a modification of the Plan to increase the 2% available for the purchase of reinsurance.

Problems under the Plan

Among the many questions which have arisen in connection with the application of the Plan, the following appear to be of particular interest:

1. *Determination of Governing Classification*

   On all of these risks there are substantial amounts of payroll which, under the manual rules, are properly assigned to the governing classification of the risk. Payrolls are audited monthly and under orthodox practices followed in workmen's compensation insurance, the governing classification cannot finally be determined until the project has been completed. This may be at some far distant future date. Consequently, the only alternative is to make a preliminary determination of the governing classification in the light of the facts known at the time of audit and make the necessary adjustments at the final accounting of the risk. The disadvantages of this procedure are obvious and it has been suggested by the Bureau of Yards and Docks of the Navy Department that each month's payroll be used to definitely establish the governing classification of the risk for that month. This suggestion has been considered favorably by the Joint Rating Committee and they have agreed to recommend the adoption of such a rule provided the various governmental agencies find such a procedure acceptable.

There is much in favor of the proposal, since it avoids the necessity of a reconsideration of monthly audits at a date months or years after they have previously been passed upon by the governmental departments whose duty it is to approve disbursement of funds. Admittedly, such a procedure would be fraught with danger if applied generally, but its application to risks written under the Plan is quite practicable.

2. *Interstate Application of Plan*

In connection with a question which was raised as to whether operations in several states, all covered under one contract, should be combined for rating under the Plan, it was the unanimous conclusion of the Joint Rating Committee that the Plan contemplates application on an interstate basis. In this connection it should be noted that the table of fixed charges provides for a fixed percentage of expenses which does not vary by size of risk; consequently, the provision for expense is not in any way affected by combining operations on an interstate basis.

3. *Classification of Guards*

On several projects, particularly those engaged in the manufacture of explosives, question has been raised respecting the classification of the payroll of guards. This matter was considered by the Explosives Committee and by the Manual Committee of the National Council, and action was taken by that organization to provide that in all instances the payroll of guards is to be assigned to the governing classification.

An exception to this provision has been made by the California Inspection Rating Bureau which has adopted a rule to the effect that in the case of contractors engaged in miscellaneous construction work on defense projects, the payroll of watchmen or guards specifically employed to perform such duties should be assigned to Classification 7721—Patrolmen or Guards. An exception of this type may cause difficulty, particularly in the case of a contractor or sub-contractor performing work on a partially completed explosives manufacturing project which is in actual operation.

4. *Liability Insurance for Increased Limits*

There has been some demand for insurance for limits in excess of those provided for under the Plan, particularly on projects on which there is an explosive hazard. Insurance for limits in excess of those prescribed in the Plan is catastrophe insurance and should be handled on a guaranteed-cost basis and not under the Plan.

5. *Extra Legal Medical*

The War Department has ruled that medical benefits in excess of the workmen's compensation statutory benefits and made for the purpose of reducing the period or degree of disability, may be approved for inclusion as part of the losses incurred under the Plan, only if prior approval has been obtained from the contracting officer on the project. While there appears to be no definite rule prohibiting a contracting officer from granting blanket approval for the payment of extra-legal-medical benefits, it appears probable that in the great majority of instances approval of the contracting officer will be required in each individual case.

6. *Trainees*

It is a common practice to train in an existing ordnance plant employees who are to operate new plants and question has been raised as to whether these trainees should be considered to be employees of the plant in which they are being trained. In this connection, it should be noted that there is an increased public liability hazard resulting from this practice. Under the War Department regulations trainees cannot be considered to be employees of the plant in which they are being trained. So far as the increased public liability hazard is concerned, it is suggested that interested carriers on individual risks might agree between themselves as to the procedure to be followed with respect to subrogation.

7. *Notice of Suits*

The War Department requires that it be given notice of all suits on projects of the War Department insured under the Comprehensive Insurance Rating Plan. This action is taken for the purpose of making certain that the Government will be in a position to protect its interests in the event that claims are made for an amount in excess of the policy limits, and also in the event that there is a question of negligence of a United States employee.

8. *Occupational Disease Coverage*

The Plan as phrased specifies that the workmen's compensation coverage shall include "Occupational Disease Coverage by endorsement." In actual practice, the War Department requires insurance under Paragraph 1 (b) for limits of $50,000 per employee and $100,000 per accident, with a $100,000 aggregate limit for occupational disease.

9. *Competitive State Funds*

The Comprehensive Plan specifically permits but does not require that all lines of business be combined for rating. Soon after the Plan became effective question was raised as to how a carrier not authorized to transact all of the lines of business included under the Plan could write any of this business. This problem is one which is of particular interest to competitive State Funds.

There is nothing in the Plan itself nor in the regulations of the several governmental departments which would preclude the writing of the business by two carriers—one to carry the workmen's compensation portion of the risk and the other to carry the liability portion. Under such conditions the premium would still be computed upon the combined operations of all lines and the two interested carriers would agree in advance as to the distribution of premium. Some business has already been written on this basis.

10. *Allocation of Premiums to Lines of Business*

The allocation of premium on the company's records by line of business is a simple procedure in all instances in which the final premium is less than the maximum. Under these conditions the indicated premium for each individual line is calculated as the sum of the fixed charge plus the modified losses plus the allocated claim expense, all multiplied by the appropriate tax multiplier for the line.

The following procedure has been established for allocating premium by line of business where the indicated premium exceeds the maximum:

(a) Determine for each line of business the amount by which the indicated premium exceeds the maximum and the total of such excess for all lines producing an excess.

(b) Determine the ratio which the excess amount for each line of business bears to the total excess amount as calculated under item (a).

(c) Determine the amount by which the total indicated premium for all lines combined exceeds the maximum premium for all lines combined.

(d) Multiply the amount developed under item (c) by the ratios determined in item (b) for each line of business to determine the amount to be deducted from the indicated premium in each line of business.

(e) The sum of the premiums obtained after the deduction as specified in item (d) plus the indicated premiums for the lines of business for which no excess is produced is equal to the maximum premium for all lines combined.

Where premium pertaining to more than one state is involved, each line of insurance in each state should be treated as a separate line of business for the purpose of applying these rules.

An example is set forth below illustrating the application of the procedure to a risk developing an indicated premium of $102,000 and a maximum premium of $90,000:

(1)	(2)	(3)	Excess for Line Producing Excess		(6)	(7)
Line of Insurance	Indicated Premium	Maximum Premium	(4) Amount	(5) %	Adjusted Excess (5) × [Total (2) — Total (3)]	Premium Allocation (2) — (6)
Comp.	89,000	80,000	9,000	66.7	8,000	81,000
Auto B.I.....	7,000	2,500	4,500	33.3	4,000	3,000
Auto P.D....	1,000	1,500	—	—	—	1,000
Liability	5,000	6,000	—	—	—	5,000
Total	102,000	90,000	13,500	100.0	12,000	90,000

11. *Report Forms*

The Plan specifically provides for making quarterly reports of losses, preliminary reports of premium settled 60 days after expiration, and final reports six months after expiration. Since the details of these report forms have not yet been finally determined, it is not possible to include in this paper any definite information respecting such report forms.

12. *War Risk Hazard*

It is recognized that the war risk hazard under a workmen's compensation policy covering operations outside of continental United States represents a potential catastrophe loss of such magnitude as to be virtually uninsurable. This is recognized by both the War and Navy Departments and provision has already been made for relieving the carriers of the hazard on projects outside of continental United States not only where such projects are on a cost-plus-a-fixed-fee basis but also where they are on a lump sum basis.

There is an equally serious war risk hazard in connection with workmen's compensation risks written within the United States and this exists not only on risks written under the Comprehensive Insurance Rating Plan but also in connection with workmen's compensation risks not under the Plan. As yet, no provision has been made for this hazard, although legislation is under consideration by Congress.

Insurance of Projects Outside Continental United States

A number of projects of the War and Navy Departments insured under the Plan are located at various points outside of continental United States. The rates used in determining the standard premium under the Plan in such instances are not established by the Joint Rating Committee, but are a matter of negotiation between the carrier and the interested governmental department on each individual project. Some of the more important considerations peculiar to projects of this type are discussed briefly below:

1. *Workmen's Compensation Benefits*

Legislation has been enacted by Congress extending the provisions of the Longshoremen's and Harbor Workers' Compensation Act to persons employed at military, air and naval bases acquired after January 1, 1940 from any foreign government and to such persons on any land occupied or used by the United States for military or naval purposes in any territory or possession outside continental United States but excluding the Canal Zone. The benefits payable under that Act are modified by eliminating the minimum limitation on weekly disability benefits and on average weekly wages used for computing death benefits; by limiting beneficiaries to surviving wife and children or, if there be no wife or child, to a surviving parent supported, in whole or in part, by the employee for one year immediately prior to the date of injury; and by providing that the United States Employees' Compensation Commission may at its option, or upon application of the carrier must, commute all future instalments of compensation payable to aliens and non-nationals of the United States by payment of one-half of the commuted amount of such future instalments.

Some such legislation as this is essential in order to avoid hopeless confusion. Some of these projects are located in jurisdictions which have Workmen's Compensation Acts and others are in jurisdictions with no Compensation Acts. Many of the employees on these projects are brought from the United States and in the event of their injury question might well arise as to whether they should seek compensation under the benefits of the Act of the jurisdiction in which the project is located, under the Act of the State in which they are a resident, under the Act of the State in which they were employed or under the Act of the State from which they embarked. Since the scale of benefits under the Longshoremen's and Harbor Workers' Compensation Act is more liberal than the scale of benefits in most of the jurisdictions in which the projects are located, any confusion on this score is largely eliminated.

Some provision for the commutation of benefits payable to dependents and to employees who sustain permanent disabilities is essential in order to avoid the substantial unnecessary expense which would be involved in endeavoring to maintain biweekly payments of small amounts after projects have been completed and the carrier no longer has a representative on the project.

On many of these projects, particularly those located in the tropics or sub-tropics, the prevailing wages of local labor is very substantially below the wage contemplated by the minimum established in the Longshoremen's and Harbor Workers' Compensation Act. Removal of the minimum eliminates an incentive to malinger.

2. *War and Transportation Hazard*

As previously stated, many of the employees on these projects are transported from the United States. The projects involve the construction of or addition to military and naval bases and consequently present a very substantial war risk hazard. The war and transportation hazards referred to are essentially catastrophe hazards and as such are not properly included under the Plan. Therefore, provision is made on these projects to modify the Plan to provide that such losses are not subject to the maximum premium. However, the company adjusts and pays such losses and accounts for them in the same manner as for other losses under the Plan. A copy of the endorsement providing for this procedure is set forth in Appendix C.

3. *Medical Coverage*

The War Department in its projects at these bases provides that the company shall be relieved of the payment of all medical benefits with respect to injuries occurring to employees outside of continental United States except where such benefits are rendered within the continental United States. In practice, the War Department provides for making available to injured employees the services of the Army medical staffs and hospitals located at the projects. However, in the event that an injured employee requires medical treatment after being returned to the United States, the carrying company is required to furnish such treatment.

An endorsement covering this particular provision is set forth in Appendix C.

4. *Abnormal Hazards*

While conditions in these projects vary from one to another, it is obvious that all of them present hazards which are not normally found on like operations conducted in the United States. Frequently the projects are in locations which are subject to extremes of temperature and in which employees are exposed to unusual health hazards. Furthermore, these projects not infrequently are extremely inaccessible. With respect to third party liability, carriers on these projects are dealing with unknown quantities. In certain instances there may be considerable doubt as to which court will have jurisdiction over liability claims. Where claims come within the jurisdiction of local courts, conditions may differ radically from those normally contemplated. It is possible also that an abnormal degree of claim consciousness may be encountered.

All of these elements must of necessity be carefully weighed in arriving at a schedule of rates to be used in determining the standard premium and in developing the rating values to be applied under the Plan.

5. *Rating Values*

In setting up rating values under the Plan, consideration must be given to the need for expense provisions in excess of those contemplated by the fixed charges of the standard plan. A company insuring one of these projects undoubtedly will find it necessary to pay salaries higher than normal, to provide for transportation of employees from the United States to the project and return, and to provide for living expenses. Furthermore, employees located at these projects will have no opportunity to devote any of their time or effort to other work so it will be necessary to maintain on a full-time basis the maximum staff required at any one time.

On some projects of the War Department a schedule of "abnormal fixed charges" has been established to provide an additional amount for expense ranging from 9% of the standard premium for risks of $200,000 and less down to 2.5% for risks of $1,500,000 and over. There is included in Appendix C an "Insurance Rating Plan Endorsement" which has been used on some projects and which provides in paragraphs 1(f) and 1(g) for these abnormal fixed charges. It will be noted from this endorsement that the abnormal fixed charge in this particular case is limited to a maximum amount equal to $1000 per month for the number of months for which coverage is afforded.

This particular "Insurance Rating Plan Endorsement" provides for a factor of 81% to be applied to the workmen's compensation portion of the total standard premium in determining the maximum premium and for a loss modification factor of 1.13. These factors presumably reflect the effect of limited medical coverage. In this connection it should be noted that the "abnormal fixed charge" has the effect of reducing the allowance for losses in the maximum and that fact as well as the actual reduction in the maximum per cent should be considered in establishing rates for the determination of the standard premium.

A tax-multiplier is permissible only in the event that a premium tax is payable. It has been contended by the War Department that the carriers insuring such projects are not required to be licensed by the jurisdictions in which the projects are located and consequently that insurance premiums on these particular projects are not subject to tax. However, it is necessary to consider the effect of the statutes of the state in which the business is written. For example, carriers admitted in New York are required to pay to New York a premium tax on all premiums written in that state on risks located outside of New York and not subject to taxation by the jurisdiction in which they are located.

General Comment

It may be expected that as the war progresses there will be a constant increase in the amount of business written under the Plan. It also may reasonably be expected that after the war policyholders who have been insured under the Plan will wish to continue their insurance on a basis which provides for adjustment of the premium to reflect directly the assured's own experience under the policy. Large risks can well afford to pay for their own normal workmen's compensation losses. Their real need is for claim and accident prevention services and for insurance against abnormal losses. This in effect is the coverage afforded under the Comprehensive Insurance Rating Plan and very probably is the type of coverage which will be demanded by large assureds in the future.

Regardless of any other effect which the Plan may have on the writing of business in the future, it is inevitable that it has had and will have the effect of hastening the introduction of graded expense. In addition, the Plan has demonstrated the value of combining third party lines of insurance for rating. From an assured's point of view the differentiation by line of business and the separate rating of each individual line is an unnecessary additional complication which further confuses him. The introduction of comprehensive insurance has gone far toward promoting the combination of liability lines, and the subsequent introduction of the Comprehensive Insurance Rating Plan is an additional step forward toward the development of a rounded rating program under which an assured pays a single premium for third party insurance, and so calculated as to reflect to the greatest degree possible the hazard of the individual risk.

Admittedly, the Plan as it now exists requires modification if it is to be applied to the business generally, but the principles underlying the Plan are sound.

APPENDIX A

UNITED STATES GOVERNMENT DEFENSE PROJECTS

Discount Plans for Workmen's Compensation and Employers' Liability Coverages

Status as of April 23, 1942

State — *Remarks*

ALABAMA

Effective February 19, 1941, a graded rate reduction plan applicable to "United States Government Defense Construction Contracts" was approved for STOCK companies. The plan is subject to the following discounts:

Premium Range	Discount
First $ 1,000	—
Next 4,000	4.2%
Next 20,000	16.1
Next 25,000	18.7
Over 50,000	21.3

Applicable to new, renewal and to unexpired term of outstanding policies.

Effective February 27, 1941, a 10% reduction in rates was approved for NON-STOCK companies applicable to "National Defense projects on which Compensation and Employers Liability insurance coverage is approved or recommended by the Federal Government or any agency thereof."

In the interest of uniformity, the Insurance Department has extended its approval for STOCK companies to apply to the same classification definition approved for NON-STOCK companies.

COLORADO

Approval has been granted a filing involving a reduction of 20% in rates (with 5% maximum acquisition allowance), on a *specific* National Defense Construction Project. If any new Defense Project arises in this state, the interested companies should make direct contact with the state rate supervisory authority.

DELAWARE

Effective April 29, 1941. Plans I and II same as Pennsylvania. Effective March 1, 1942 Plan II was withdrawn. Withdrawal of the plan not to affect policies which continue in effect over January 1, 1942 and were written prior to that time subject to the flat percentage reduction plan.

State	*Remarks*
DISTRICT OF COLUMBIA	Effective January 1, 1942. Same as Florida.
FLORIDA	Effective March 13, 1941, approval of the National Council filing has been granted, involving a reduction of 20% in rates, (with 5% maximum acquisition allowance), for STOCK companies, and a 10% reduction for NON-STOCK companies, in connection with "National Defense Projects on which Compensation and Employers Liability insurance coverage is approved by or recommended by the Federal Government or any agency thereof." Applicable to new and renewal policies.
GEORGIA	Effective March 10, 1941, a 20% reduction authorized for ALL CARRIERS; applicable to "National Defense Projects on which Compensation and Employers Liability insurance coverage is approved or recommended by the Federal Government or any agency thereof." The maximum acquisition allowance for STOCK companies is 5%. On January 21, 1942, in order to clarify the type of risks to which the rate reductions apply the National Council refiled the 20% rate discount on behalf of ALL CARRIERS limiting the application of the discount to National Defense Projects (1) where the work is to be performed upon a cost-plus-a-fixed-fee basis and where the cost of the insurance is a separate and distinct item reimbursed by the United States Government and (2) where the United States Government has specifically selected the insurance carrier—such selection being made because of some definite advantage to the government. The effective date of this interpretation is March 10, 1941 and applicable to outstanding, new and renewal business.
INDIANA	Effective March 10, 1941, a rate reduction of 20% authorized (with 5% maximum acquisition allowance), provided the insurance carrier can show supporting evidence for decrease in acquisition, administration and audit expense of not less than 15% of expense loading in connection with the underwriting of any risk classified as United States Government Defense Projects. Such showing to be made to the Workmen's Compensation Rating Bureau of Indiana and the Department of Insurance of Indiana for each individual risk before such deviation applies. Plan applicable to new and renewal policies only.

State	*Remarks*
	Effective July 8, 1941, the law in Indiana was changed so that the Commissioner was empowered to approve maximum rates only. At present any rates not higher than those approved can now be used without commissioner's approval.
Kansas	Effective April 15, 1941. Same as Florida.
Kentucky	Effective March 13, 1941. Same as Florida.
Louisiana	Same as Colorado.
Maine	Same as Colorado.
Maryland	Effective April 4, 1941. Same as Florida.
Michigan	Effective March 19, 1941. Same as Florida.
New Hampshire	Effective April 2, 1941. Same as Florida.
New Jersey	Effective March 24, 1941, a reduction of not to exceed 20% in rates (with 5% maximum acquisition allowance), authorized for ALL CARRIERS, applicable to "National Defense Projects on which Compensation and Employers Liability insurance coverage is approved by or recommended by the Federal Government or any agency thereof." Each carrier must make its own individual filing of the flat percentage of discount which it wishes to use uniformly on Compensation and Employers Liability Defense Projects risks.
New Mexico	Effective March 13, 1941. Same as Florida.
New York	Effective March 12, 1941, a reduction of 20% in rates (with 5% maximum acquisition allowance), authorized for ALL CARRIERS, applicable to "National Defense Projects on which Compensation and Employers Liability insurance coverage is approved by or recommended by the Federal Government or any agency thereof." Applicable on new and renewal business only.
Oklahoma	Effective March 24, 1941. Same as Florida.

State *Remarks*

PENNSYLVANIA Effective April 15, 1941. Two plans to apply to defense projects where Compensation Insurance was "approved by or recommended by the Federal Government or any agency thereof."

Plan I—A Defense Rating Plan providing retrospective adjustment of the earned premium and reduction in acquisition cost as follows:

Premium Range	Allowance for Acquisition
First $ 1,000 of standard premium.........	17.5%
Next 4,000 of standard premium.........	15.0
Next 15,000 of standard premium.........	10.0
Next 80,000 of standard premium.........	5.0
All standard premiums in excess of 100,000.	2.5

Plan II—Flat percentage reduction plan not to exceed 20% for which members of the Pennsylvania Bureau must receive Commissioner's approval. Plan II was withdrawn as of March 1, 1942 with respect to new and renewal policies effective on and after that date. Policies in force written under this plan may continue to expiration.

SOUTH CAROLINA Effective March 13, 1941. Same as Florida.

TENNESSEE Effective March 13, 1941. A reduction of 20% in rates authorized for ALL CARRIERS, applicable to "National Defense Projects on which compensation and Employers Liability Insurance coverage is approved or recommended by the Federal Government or any agency thereof." The maximum acquisition allowance for STOCK companies is 5%.

VIRGINIA Effective February 21, 1941, the Virginia Corporation Commission approved a 20% reduction in rates (with 5% maximum acquisition allowance) for STOCK companies, applicable to "United States Government Contracts on a Cost-Plus-A-Fixed-Fee Basis."

Effective February 22, 1941, the Commission approved a reduction of 10% for CERTAIN NON-STOCK companies.

APPENDIX B

The Comprehensive Rating Plan Which May Be Applied to National Defense Projects for Which Compensation and Employers' Liability Insurance Is Approved by or Recommended by the United States Government or any Agency Thereof

A. If this Plan is selected, insurance under the Plan may apply to the combined coverage of the following policies:

1. Workmen's Compensation—full coverage with occupational disease coverage by endorsement or in jurisdictions not having compensation laws, Employers' Liability Insurance for limits of at least $50,000 per person in any one accident and, subject to that limit for each person, at least $100,000 for injuries sustained by two or more persons in any one accident.
2. Automobile Bodily Injury Liability—insurance for limits of at least $50,000 per person in any one accident and, subject to that limit for each person, at least $100,000 for injuries sustained by two or more persons in any one accident, the policy to be written on the Comprehensive Liability form if permitted, covering all owned, non-owned and hired automobiles used in connection with the project, the use of which is not restricted to the premises. The fleet automatic basis will be applied.
3. Automobile Property Damage—insurance for a limit of at least $5,000 per accident, the policy to be written on the Comprehensive Liability form if permitted, to cover all owned, non-owned and hired automobiles used in connection with the project, the use of which is not restricted to the premises. The fleet automatic basis will be applied.
4. Comprehensive Bodily Injury Liability (primary for all subcontractors and primary and protective for all principal contractors and architect-engineers)—insurance for limits of at least $50,000 per person in any one accident, and, subject to that limit for each person, at least $100,000 for injuries sustained by two or more persons in any one accident.
5. Property Damage Liability other than automobile—insurance, if carried, to be for such amount as may be agreed upon.

B. The Plan shall not be used where the estimated standard premium for the insurance is less than $5,000.

C. The carrier insuring the risk may combine the operations of the principal contractor and all of his subcontractors under this Plan. The insurance shall be continuous and concurrent until completion of the project or operation except that if the project or operation is of indefinite duration the insurance to be written under this plan shall be for a period of twenty-four (24) months. In such event, if the project or operation continues for a longer period than twenty-four (24) months, at the expiration of the first twenty-four (24) months, the policies of insurance will be renewed and the Plan applied as though it were a new project or operation.

D. All policies written under this Plan shall be subject to the following provisions:

1. The premium under the Plan shall be a fixed charge plus modified losses plus all actual allocated claim expense, all multiplied by the tax multiplier, subject to a maximum premium equal to 90% of the standard premium times the tax multiplier.

(a) The standard premium shall mean the premium determined by the application of the manual rules and rates, approved for this Plan for the jurisdiction in which the risk is located, without discount to reflect any expense loading modifications.

(b) "Losses incurred" shall mean the sum of all losses actually paid plus reserves (indemnity and medical) for unpaid losses plus actual hospital and medical expenses.

(c) "Modified losses" shall mean the losses incurred increased by the application of a factor of 1.12.

(d) "Fixed charge" shall mean the amount provided for fixed expenses and for losses in excess of the maximum. The fixed charge shall be determined by applying the appropriate per cent as set forth in Table I, to the standard premiums for Workmen's Compensation or Employers' Liability, Automobile Liability and Property Damage, and all other liability and property damage combined.

(e)

TABLE I

Table of Fixed Charges

Standard Premium (Workmen's Compensation and all Liability Coverages Combined)	Fixed Charge (Expressed as a percentage of Standard Premium)
$ 5,000 or less	37
10,000	29
25,000	24
50,000	18.4
100,000	12.5
150,000	11.5
200,000	10.5
250,000	9.7
300,000	9
350,000	7.5
400,000 to 700,000	6.5
700,000 and over	6.3

If the standard premium lies between any two of the figures in the standard premium column, the Fixed Charge shall be interpolated.

(f) "Tax multiplier" shall mean a factor to be applied to the fixed charge, to the modified losses and to the allocated claim expense in order to increase those amounts sufficiently to provide for those taxes which are levied as a percentage of premiums and for assessments for industrial commissions, rating boards and bureaus.

Workmen's Compensation Tax Multiplier.................... = 1. ......
Automobile B.I. and P.D. Liability Tax Multiplier........ = 1. ......
Other Liability Tax Multiplier............................ = 1. ......

2. The deposit premium shall not be less than 15% of the estimated annual standard premium.

3. The carrier shall be paid not less than 50% of the earned standard premium on policies written on a payroll basis determined monthly by audit of expended payrolls and shall be paid not less than 50% of the earned standard premium on all other policies determined monthly on the basis of the actual monthly exposures.

4. Within sixty (60) days after expiration (or termination on completion of the project) of the policy, the carrier shall compute the aggregate amount of modified losses times the tax multiplier, the aggregate fixed charge times the tax multiplier, the aggregate allocated claim expense times the tax multiplier and the aggregate earned standard premium, and a preliminary settlement of premium shall be made.

5. Within eight months after termination of the policy, based upon a determination of loss reserves made not earlier than six months after such termination, a final settlement of premium shall be made. If the losses so determined are not final, the final settlement shall be deferred for a further six months or such further period up to twenty-four (24) months as may be necessary. In the event of disagreement on loss reserves reached by this method, the matter shall be referred for arbitration to a committee of three, one member of which shall be selected by the insured, one by the carrier, and the third by those two members.

6. If the policy is cancelled, the earned standard premium shall be determined on a pro-rata basis, but if such cancellation is effected by the insured—except for cancellation on completion of the project—the maximum premium shall be 90% of the standard premium for the original period of insurance, obtained by extending the earned standard premium on a pro-rata basis, increased by the provision for taxes.

E. In the case of projects presenting an abnormal hazard by reason of the fact that they require the handling of explosives or dangerous chemicals, the fixed charges as set forth in Table I of this Plan may be increased, with the approval of the Board or Bureau having jurisdiction, by an amount sufficient to reflect the increased hazard.

RULES AND RATES APPLICABLE TO

The Comprehensive Rating Plan Which May Be Applied to National Defense Projects for Which Compensation and Employers' Liability Insurance Is Approved by or Recommended by the United States Government or any Agency Thereof.

1. *Workmen's Compensation Insurance*

   (a) The Manual rules and rates of the National Council on Compensation Insurance shall be used as a basis for determining the standard premium for workmen's compensation insurance. An average rate shall be permitted on operation projects only where the Board or Bureau having jurisdiction has been furnished with the data necessary to develop such rate; provided, that such rate shall not apply unless the carrier and the governmental department affected agree to its use. No discount which may be provided for in any of the above-mentioned manual rules to reflect any reduction in expense shall be applicable in determining the standard premium.

   (b) Experience Rating shall not be employed, but in lieu thereof, and in further recognition of hazard differences, the following rule shall apply:

   For the purpose of determining the amount of the "fixed charge" under this Plan the standard premium for workmen's compensation insurance shall be discounted 10% before applying the appropriate percentage as prescribed in Table I of the Plan.

2. *Automobile Bodily Injury and Property Damage Liability Insurance*

   The manual rules and rates of the National Bureau of Casualty and Surety Underwriters shall be used as the basis for determining the standard premium for automobile bodily injury and property damage liability insurance subject to the modifications set forth below:

   (a) All commercial automobiles shall be rated as Medium Class 5 regardless of the class and load capacity to which such commercial car would ordinarily be assigned.

   (b) All automobiles classified as private passenger automobiles under the manual shall be rated as Class B. In those jurisdictions in which private passenger cars are also rated by symbols W, X and Y, all such cars shall be assigned to symbol W.

   (c) In lieu of the rates appearing in the manual for non-ownership bodily injury and property damage liability, standard limit rates applicable to this coverage shall be $0.075 per $1,000 of payroll for bodily injury liability, and $0.05 per $1,000 of payroll for property damage liability, these rates to apply to the total payroll on the project.

(d) All automobiles owned by the Federal Government and furnished for the contractor's use on a project and all automobiles hired or purchased under rental purchase contracts shall be classified and rated the same as automobiles owned by the contractor. Hired automobiles other than those hired under a rental purchase contract shall be rated in accordance with the rules and rates prescribed in the manual.

(e) Neither the Experience Rating Plan nor the Automobile Fleet Plan discount nor any other individual risk rating plan shall be used, but in lieu thereof, and in consideration of the reduced hazards on these risks, the manual rates, including the rates set forth above, shall be subject to a uniform discount of 50%.

In the event that coverage is required for any automobiles for which passengers are carried for a consideration, such automobiles are to be rated in accordance with the manual rules and rates applicable to public automobiles, subject to the 50% discount applicable to other classes of automobiles.

3. *Comprehensive Bodily Injury Liability Insurance*

The manual rules and rates of the National Bureau of Casualty and Surety Underwriters shall be used as the basis for determining the standard premium for comprehensive bodily injury liability insurance. Neither the Experience Rating Plan nor any other individual risk rating plan shall be used, but in lieu thereof, and in consideration of the reduced hazards on those risks, all manual rates shall be subject to a uniform discount of 50%.

Rates for "a"-rated classifications, including average rates applicable to operation projects for which average rates are to be applied for the workmen's compensation coverage, shall be obtained from the Joint Rating Committee.

CALIFORNIA

The Rate Manual for Workmen's Compensation Insurance in California is the one promulgated by the California Inspection Rating Bureau. The Plan must be applied separately to workmen's compensation and to all liability coverages combined.

DELAWARE

The Rate Manual for Workmen's Compensation Insurance in Delaware is the one promulgated by the Delaware Compensation Rating and Inspection Bureau.

KANSAS

The Kansas Compensation Act provides for levying certain fees per claim which are paid into a fund for the support of the Industrial Commission. All such fees must be added to the modified losses before applying the tax multiplier.

State	Effective Date	TAX MULTIPLIERS		
		Workmen's Compensation*	Auto Liability	Other Liability
Alabama	May 22, 1941	1.034	1.029	1.029
Alaska	May 15, 1941	1.029	1.024	1.024
Arkansas	May 22, 1941	1.050	1.024	1.024
California	Dec. 22, 1941	1.035	1.030	1.030
Colorado	May 28, 1941	1.029	1.024	1.024
Connecticut	May 15, 1941	1.029	1.024	1.024
Delaware		1.050	1.024	1.024
District of Columbia	May 22, 1941	1.029	1.024	1.024
Florida	May 22, 1941	1.036	1.024	1.024
Georgia	May 29, 1941	1.053	1.024	1.024
Idaho	May 15, 1941	1.040	1.034	1.034
Illinois	May 15, 1941	1.029	1.024	1.024
Indiana	July 9, 1941	1.029	1.024	1.024
Iowa	May 15, 1941	1.034	1.029	1.029
Kansas	May 22, 1941	1.029	1.024	1.024
Kentucky	May 22, 1941	1.029	1.024	1.024
Louisiana	May 22, 1941	1.037	1.031	1.031
Maine	May 22, 1941	1.029	1.024	1.024
Maryland	May 22, 1941	1.029	1.024	1.024
Michigan	June 23, 1941	1.029	1.024	1.024
Minnesota	May 22, 1941	1.029	1.024	1.024
Mississippi	June 6, 1941	1.040	1.034	1.034
Missouri	June 16, 1941	1.029	1.024	1.024
Montana	May 15, 1941	1.029	1.024	1.024
Nebraska	May 15, 1941	1.029	1.024	1.024
Nevada	June 6, 1941	1.029	1.024	1.024
New Hampshire	May 22, 1941	1.029	1.024	1.024
New Jersey	June 3, 1941	1.042	1.024	1.024
New Mexico	May 15, 1941	1.029	1.024	1.024
New York	June 2, 1941	1.040	1.024	1.024
North Carolina	May 26, 1941	1.062	1.029	1.029
North Dakota	June 6, 1941	1.034	1.029	1.029
Ohio	June 6, 1941	1.034	1,029	1.029
Oklahoma	June 9, 1941	1.050	1.045	1.045
Oregon	June 6, 1941	1.031	1.026	1.026
Pennsylvania		1.040	1.024	1.024
Rhode Island	May 15, 1941	1.029	1.024	1.024
South Carolina	May 22, 1941	1.056	1.034	1.034
South Dakota	May 22, 1941	1.034	1.029	1.029
Tennessee	June 4, 1941	1.050	1.029	1.029
Texas	June 14, 1941	1.058	1.053	1.051
Utah	July 1, 1941	1.031	1.026	1.026
Vermont	June 9, 1941	1.029	1.024	1.024
Virginia	June 6, 1941	1.034	1.031	1.031
Washington	June 18, 1941	1.031	1.026	1.026
West Virginia	June 6, 1941	1.029	1.024	1.024
Wisconsin	June 9, 1941	1.029	1.024	1.024
Wyoming	June 6, 1941	1.034	1.029	1.029

* Including employers' liability and voluntary compensation.

LOUISIANA The Rate Manuals applicable to Automobile and Other Liability Lines in Louisiana are those promulgated by the Louisiana Casualty and Surety Rating Commission.

MARYLAND — The Maryland Compensation Act provides for levying an assessment per $100 of payroll for the expense of the Industrial Commission. An amount equal to 3.4 cents per $100 of payroll for workmen's compensation insurance must be added to the fixed charges before applying the tax multiplier.

NEW JERSEY — The Rate Manual for Workmen's Compensation Insurance in New Jersey is the one promulgated by the Compensation Rating and Inspection Bureau of New Jersey.

NEW YORK — The New York Compensation Law provides for levying an assessment on indemnity losses for the expenses of the Department of Labor. An amount equal to 4.5% of the indemnity losses incurred must be added to the modified losses before applying the Tax Multiplier. The Rate Manual for Workmen's Compensation Insurance in New York is the one promulgated by the Compensation Insurance Rating Board.

NORTH CAROLINA — The Rate Manuals applicable in North Carolina are as follows:

Workmen's Compensation:—Compensation Rating and Inspection Bureau of North Carolina.

Automobile Liability:—North Carolina Automobile Rate Administrative Office.

PENNSYLVANIA — The Rate Manual for Workmen's Compensation Insurance in Pennsylvania is the one promulgated by the Pennsylvania Compensation Rating and Inspection Bureau.

TEXAS — Separate Plan promulgated by the Board of Insurance Commissioners.

VIRGINIA — The Rate Manual for Workmen's Compensation Insurance in Virginia is the one promulgated by the Workmen's Compensation Inspection Rating Bureau of Virginia.

WISCONSIN — The Rate Manual for Workmen's Compensation Insurance in Wisconsin is the one promulgated by the Wisconsin Compensation Rating and Inspection Bureau.

APPENDIX C

War and Transportation Losses Endorsement

(For Use in Connection with Outlying Bases Contracts)

Amending Policy Numbered..................................

It is agreed that premium based on the following losses shall not be subject to the maximum premium as specified in the .... Insurance Rating Plan Endorsement:

1. All losses arising from war whether declared or not, international hostilities, rebellion, insurrection, the discharge or explosion of munitions, or the use of any instrument of war.
2. All losses arising from the collision of vessels in convoy, or arising from the operation of vessels without running lights or without customary peace-time aids to navigation.
3. The excess over $.................................. of all other losses arising out of any one accident occurring in the course of water-borne or air-borne transportation to or from the continental limits of the United States of America exclusive of Alaska, and a place not within such limits, or between places not within such limits other than transportation in and about the place where work is being performed.

Whenever losses as defined in this endorsement occur, the Company shall compute the amount of such losses and shall furnish to the insured and to the .... an itemized statement thereof. The Company shall also furnish at the same time to the insured and to the ...., with respect to such losses resulting from death, permanent total disability or permanent partial disability of employees of the insured, an itemized statement of modified losses therefrom, and a preliminary settlement of premium for such losses shall then be made. This preliminary settlement shall to the extent thereof be in lieu of the preliminary settlement of premium provided for in paragraph 6 of the .... Insurance Rating Plan Endorsement but preliminary settlement provided for in this endorsement shall be subject to revision at the time of the settlement provided for in said paragraph 6.

Such losses as are defined in this endorsement incurred under policies .... shall be converted to modified losses by the application of a factor 1.12 instead of 1.13 applicable to other losses under said policy.

This endorsement is executed by the .... Company as respects insurance afforded by that company only;

....
Company

Medical Endorsement

(For Use in Connection with Outlying Bases Contracts)

It is agreed that the employer shall furnish or assume the payment of the cost of, and shall save the Company harmless from the payment of, all medical, surgical and other attendance or treatment, nurse and hospital service, medicine, crutches, and apparatus, transportation or other expenses of such nature with respect to injuries occurring to employees outside of the continental United States so long as any such treatment or care is necessary in any case, except where such benefits are rendered in the continental United States.

This endorsement is executed by .... Company as respects insurance afforded by that company only; it is executed by .... Company as respects insurance afforded by that company only.

Workmen's Compensation Endorsement under the Act of August 16, 1941 (Public Law No. 208, 77th Congress) Covering Employments at Certain Military, Air and Naval Bases of the United States

The obligations of Paragraph One (a) of the Policy include the

Longshoremen's and Harbor Workers' Compensation Act, being Public Act No. 803 of the 69th Congress, approved March 4, 1927, as extended by the provisions of the Act of Congress providing compensation for disability or death resulting from injury to persons employed at military, air and naval bases and at certain other places, being Public Act No. 208 of the 77th Congress, approved August 16, 1941, and all laws amendatory thereof or supplementary thereto which may be or become effective while this Policy is in force.

The Company will carry out the provisions of Section 35 of Said Act. Insolvency or bankruptcy of the Employer and/or discharge therein shall not relieve the Company from payment of compensation and other benefits lawfully due for disability or death sustained by any employee during the life of the Policy.

The Company agrees to abide by all the provisions of said Act and all lawful rules, regulations, orders, and decisions of the United States Employees' Compensation Commission and of the Deputy Commissioner having jurisdiction, unless and until set aside, modified, or reversed by a court having jurisdiction of the parties and the subject matter.

If this Employer is a contractor the subject of whose contract includes operations covered by this Policy and he shall sub-contract all or any part of such contract to one or more sub-contractors the remuneration of all the direct employees of all such sub-contractors shall be included in the return of remuneration under the provisions of this Policy upon which premium is computed. Such remuneration so reported shall be considered the remuneration of employees of this Employer and shall in all instances be governed by the same terms, conditions, requirements, and obligations of the Policy as the remuneration of the direct employees of this Employer. The requirements of this paragraph shall not apply as respects any such sub-contractor who has secured compensation for his direct employees as required by the Longshoremen's and Harbor Workers' Compensation Act but this Employer shall not claim the benefit of this exemption unless and until he shall satisfy the Company by certificate or otherwise that any such sub-contractor has legally secured the payment of compensation to his own direct employees and then only respecting any sub-contractor who has furnished such proof.

This endorsement shall not be canceled prior to the date specified in this Policy for its expiration until at least thirty days have elapsed after a notice of cancelation has been sent to the Commission, to the Deputy Commissioner, and to this Employer.

All terms, conditions, requirements and obligations expressed in this Policy or in any other endorsement attached thereto which are not inconsistent with or inapplicable to the provisions of this endorsement are hereby made a part of this endorsement as fully and completely as if wholly written herein.

References to the law of any state in Conditions B and D of this Policy are hereby declared to include, for the purposes of this endorsement only, the provisions of the Longshoremen's and Harbor Workers' Compensation Act and the said Act of Congress approved August 16, 1941 (Public Law No. 208, 77th Congress).

Insurance Rating Plan Endorsement

(For Use in Connection with Outlying Bases Contracts)

Amending Policy Numbered WELUB..............................

1. It is agreed that the premiums for the policies numbered....................

....

issued by the Company affording insurance in connection with the...............

....

Cost-Plus-A-Fixed-Fee Contract No. ...., to ....

....

....

and all subcontractors performing operations on a Cost-Plus-A-Fixed-Fee basis in connection with a project at .... shall be the fixed charge plus the abnormal fixed charge plus modified losses plus all actual allocated claim expense, multiplied by such tax multiplier or multipliers as shall be applicable thereto, subject to a maximum premium equal to the sum of 90% of the standard premium for Automobile Bodily Injury Liability, Automobile Property Damage Liability and for all other Liability coverages plus 81% of the standard premium for Workmen's Compensation and Employers' Liability insurance plus the abnormal fixed charge, multiplied by such tax multiplier or tax multipliers as shall be applicable thereto.

a. The premium computed in accordance with the provisions of the policies, other than this endorsement, shall be known as the "standard premium" and shall be computed in accordance with manual rules and rates which have been approved by the ....

....

b. "Losses incurred" as used in this endorsement shall mean the sum of all losses (indemnity and medical) actually paid plus reserves for unpaid losses as determined by the Company and approved by the insured and the ...., exclusive of all cost for medical and hospital care and treatment incurred by the employer outside of the continental limits of the United States.

c. "Modified losses" as used in this endorsement shall mean the losses incurred under policy .... converted by the application of the factor of 1.13 and the losses incurred under policies .... converted by the application of the factor of 1.12.

d. "Allocated claim expense" as used in this endorsement shall mean actual payments and reserves for legal expenses, excluding the cost of investigation and adjustment of claims by salaried employees and fee adjusters, but including attorney's fees, court costs, interest, expense for expert testimony, examination, X-ray, autopsy or medical expenses of any kind not incurred for the benefit of the injured or any other expenses incurred under the policy other than payment of indemnity or medical treatment, provided that only those items of expense which can be directly allocated to a specific claim involving litigation or possible litigation when necessary to determine the Company's liability shall be included.

e. "Fixed charge" as used in this endorsement shall mean the amount provided for fixed expenses and for losses in excess of the maximum. The fixed charge shall be determined by applying the appropriate percentage as set forth in column (2) of Table I, to the sum of 90% of the standard premium for Workmen's Compensation and Employers' Liability and 100% of the standard premium for Automobile Bodily Injury Liability and Property Damage Liability coverages and all other bodily injury liability and property damage liability coverages combined.

f. "Abnormal fixed charge" as used in this endorsement shall mean the amount provided for abnormal expenses in connection with contracts being performed on outlying Bases. The abnormal fixed charge shall be determined by applying the appropriate percentage as set forth in column (3) of Table I to the sum of 90% of the standard premium for Workmen's Compensation and Employers' Liability and 100% of the standard premium for Automobile Bodily Injury Liability and Property Damage Liability coverages and all other bodily injury liability and property damage liability coverages combined, subject to a maximum of the number of months in the period of coverage multiplied by $1,000 per month.

g.

TABLE I

Table of Fixed Charges and Abnormal Fixed Charges

(1) Standard Premium to be used in determining applicable Fixed Charge percentage (90% of Standard Premium for Workmen's Compensation and Employers' Liability and 100% of Standard Premium for all bodily injury liability and property damage liability coverages)	(2) Fixed Charge (Expressed as a percentage of Standard Premium stated in column 1)	(3) Abnormal Fixed Charge (Expressed as a percentage of Standard Premium stated in column 1)
$ 5,000 or less	37.0	9.0
10,000	29.0	9.0
25,000	24.0	9.0
50,000	18.4	9.0
100,000	12.5	9.0
150,000	11.5	9.0
200,000	10.5	9.0
250,000	9.7	7.5
300,000	9.0	6.5
350,000	7.5	5.8
400,000	6.5	5.3
500,000	6.5	4.5
*600,000 to 700,000 (Col. 2)	6.5	4.0
700,000	6.3	3.6
800,000	6.3	3.4
900,000	6.3	3.2
1,000,000	6.3	3.0
1,100,000	6.3	2.9
1,200,000	6.3	2.8
1,300,000	6.3	2.7
1,400,000	6.3	2.6
1,500,000 and over	6.3	2.5

* If the standard premium lies between any two of the figures in the standard premium column, the Fixed Charge, except for an amount between $600,000 and $700,000 and the Abnormal Fixed Charge shall be interpolated.

h. "Tax Multiplier" as used in this endorsement shall mean the factor as set forth in Table II as shall be applicable, to be applied to the fixed charge, to the abnormal fixed charge, to the modified losses and to the allocated claim expense in order to increase those amounts sufficiently to provide for those taxes which are legally levied as a percentage of premium and for assessments for industrial commissions rating boards, and bureaus.

i.

TABLE II

TABLE OF TAX MULTIPLIERS

State	Workmen's Compensation and Employers' Liability	Automobile Bodily Injury Liability and Property Damage Liability	Other Bodily Injury Liability and Property Damage Liability
None Contemplated. If it is ultimately decided that tax shall be payable on operations in........................ the tax shall be computed upon the basis of the formula in paragraph 2 of this endorsement.			

NOTE — Kansas Compensation Act provides for levying varying fees per claim which are paid into a fund for the support of the Industrial Commission. All such fees must be added to the modified losses before applying the tax multiplier.

Maryland Compensation Act provides for levying assessment per $100 of payroll for expenses of Industrial Commission. An amount equal to 3.4 cents per $100 of payroll must be added to the fixed charges before applying the tax multiplier.

New York Compensation Act provides for levying an assessment on indemnity losses for expenses of the Department of Labor. An amount equal to 4.5% of the indemnity losses incurred must be added to the modified losses before applying the tax multiplier.

2. If Table II fails to provide the proper tax multiplier, the multiplier will be obtained by using the following formula:

$$\text{Tax Multiplier} = \frac{1}{1.0 - (\text{the tax loading plus } 0.8\%)}$$

In any case where the tax multiplier is obtained by use of the formula and not the table, it will not be used in the premium computation until approved by the insured and the...

3. The deposit premium shall be 15% of the estimated annual standard premium.

4. The company shall be paid 50% of the earned standard premium on policies written on a payroll basis determined monthly by audit of the expended payrolls and 50% of the earned standard premium on all other policies determined monthly on the basis of the actual monthly exposures.

5. The Company shall furnish to the insured and to the..............................
....a quarterly itemized statement of incurred losses.

6. Within sixty days after termination of the policies, the Company shall compute the fixed charge plus the abnormal fixed charge plus modified losses plus all allocated claim expense, multiplied by such tax multiplier or multipliers as shall be applicable thereto, and a preliminary settlement of premium shall be made.

7. Within eight months after termination of the policies, based upon a determination of loss reserves made not earlier than six months after such termination, the final settlement of premium computed in accordance with the provisions of this endorsement and the War and Transportation Losses

Endorsement shall be made. If the losses so determined are not approved by the insured and the..
and agreement cannot be reached as to any modification thereof, the final settlement shall be deferred for a further period of six months or such further period up to twenty-four months as may be necessary to produce an approved determination of such loss reserves. In the event such an approved determination of loss reserves cannot be reached by this method, the matter shall be referred for arbitration to a committee of three, one member of which shall be selected by the insured, one by the Company and the third by those two members, and the decision of this committee shall be final upon approval by the..

8. If the policies are canceled, the earned standard premium shall be determined on a pro rata basis, but if such cancelation is effected by the insured—except for cancelation on termination of the project—the maximum premium shall be the sum of 81% of that portion of the standard premium applicable to Workmen's Compensation Insurance and Employers' Liability Insurance and 90% of that portion of the standard premium applicable to the Automobile Bodily Injury Liability and Automobile Property Damage Liability and other bodily injury liability and property damage liability coverages for the original policy period, obtained by extending the earned standard premium on a pro rata basis, all increased by such provision for taxes as shall be applicable thereto.

This endorsement is executed by..
Company as respects insurance afforded by that company only; it is executed by..Company as respects insurance afforded by that company only.

ABSTRACT OF THE DISCUSSION OF PAPERS READ AT THE PREVIOUS MEETING

THE MULTI-SPLIT EXPERIENCE RATING PLAN IN NEW YORK

ROGER A. JOHNSON, JR.

VOLUME XXVIII, PAGE 15

WRITTEN DISCUSSION

MR. CHARLES M. GRAHAM:

Mr. Johnson's paper on the Multi-Split Experience Rating Plan in New York is particularly well timed. The Plan has been in effect less than a year but certain results of its application have provoked considerable criticism. Some of these have been covered by Mr. Johnson and some have not. I shall comment not only on the points raised by Mr. Johnson, but also on certain other criticisms of the Plan, and will endeavor to offer suggestions for the amelioration of the conditions giving rise to these criticisms.

Mr. Johnson has pointed out the fact that expected loss rates have had to be recalculated once each six months for all policy years which might enter into the rating period. He has mentioned three proposals, all of which aim at eliminating the semi-annual recalculation of the expected loss rates. It is interesting to note that the Actuarial Committee of the Compensation Insurance Rating Board has recognized this situation by adopting the second proposal outlined by Mr. Johnson, i.e., a single expected loss rate for all policy years to be effective during the fiscal year, which means in effect, a single expected loss rate to apply to all ratings effective from July 1st of a given year, to June 30th of the succeeding year. It was pointed out that this procedure is practicable only when no substantial law amendments are encountered. At the present time, it does not appear likely that substantial law amendments will be encountered in New York State in the immediate future.

I was particularly glad to note that Mr. Johnson stressed the point that for risks below the Q point, the risk modification is not determined solely on a comparison of the adjusted primary losses with the expected primary losses but rather on a comparison of adjusted primary losses plus expected excess losses with total expected losses. On this point there has been a misunderstanding difficult to dispel due to the fact that the Multi-Split Rating formula buries the credibility of such losses, whereas the credibility stood out clearly in the rating computation under the old plan.

Mr. Johnson has made an excellent point in advocating the calculation of W and B values for each individual risk. The case cited by him in which a reaudit produces higher payrolls on a risk is not merely a possibility as the writer has encountered such a case in actual practice. Therefore, from the standpoint of practical as well as theoretical considerations, Mr. Johnson's recommendation that the values of W and B be individually computed for each risk to which W values apply, should be given the most careful consideration.

Mr. Johnson's second suggestion for lowering the Q point is, in my opinion, a very good one. Even if Q is reduced from 12,000 to 8,500, it will still be possible to encounter a risk which would have primary credibility greater than unity. This, however, would occur only on risks having extremely low D ratios and may possibly not occur even in these cases if certain adjustments which will be hereinafter discussed, are made in the present method of computing D ratios. It is expected that an adjustment of the Q point will be made in connection with the 1942 revision of New York rates.

Mr. Johnson's third suggestion, which is to increase the value of g from .4 to .53, is also a good one. I anticipate an increase in this value in connection with the rating factors effective 7/1/42, not, however, to the full extent recommended by Mr. Johnson. It would seem that Mr. Johnson's recommendation is fully in order but it may be thought advisable to make the adjustment gradually rather than all at once.

One objection to the present rating values used in conjunction with the Multi-Split rating plan which I consider very serious has not been mentioned by Mr. Johnson. This objection concerns the computation of the D ratios used in determining the primary expected losses for rating purposes. At the present time these D ratios are determined by using a state-wide distribution of claims according to size of loss separately for serious, non-serious, and medical other than that assigned to individual claims. From these state-wide distributions, factors are calculated measuring the relationship of the discounted costs (indemnity plus medical) of serious cases to the total serious indemnity cost undiscounted; similar calculations being made for non-serious and medical unassigned to individual claims. Although the partial D ratios so determined are applied to the separate partial pure premiums by classification, it must be obvious that the original distribution of cases by loss size groups should vary widely by classification according to the severity hazard of the classification involved. While it is recognized that it would be truly a formidable task to compile such distributions by classification and further, that having such distributions by classification, few, if any, classifications would provide sufficient exposure for the determination of partial D ratios, surely such distributions could, in time, be prepared for related groups of classifications or perhaps by industry schedules. Statistics now available compiled from actual ratings covering almost the entire first year of operation of the Multi-Split Plan, indicate that actual primary losses for the Manufacturing and All Other groups, exceed the expected primary losses by from 7 to 9%, while the expected primary losses for the Contracting industry group exceed the actual primary losses by about 9%. These figures support the views expressed above and indicate the necessity of a more refined calculation of the *D* ratios. It will probably be necessary to apply average correction factors by industry group in connection with the rate revision effective July 1, 1942, due to the lack of time available in which to make the extensive tabulations necessary for a more accurate computation of the *D* ratios. The application of such correction factors, however, will be a step in the right direction and will, undoubtedly, serve to soften the penalty which the Muti-Split Plan has exerted on many risks having low severity and high frequency rates, at the same time equalizing the effect of the Plan by reducing *D* ratios applied of risks having high severity but low frequency rates.

In conclusion, it is my belief that the Multi-Split Plan represents a distinct improvement over the plan which it superseded and that the criticisms set forth by Mr. Johnson, and also the criticism of the *D* ratios set forth above, are minor obstacles which can be remedied without undue difficulty as more experience under the Plan is accumulated.

DISCUSSION OF THE RATEMAKING PROCEDURE IN WORKMEN'S COMPENSATION INSURANCE—A METHOD OF TESTING CLASSIFICATION RELATIVITIES

STEFAN PETERS

VOLUME XXVIII, PAGE 105

WRITTEN DISCUSSION

MR. R. M. MARSHALL:

At a time when the compensation ratemaking procedure is the subject of considerable study and investigation, Mr. Peters' paper, "A Method of Testing Classification Relativities" is a welcome addition to the literature of the Society.

The reader cannot fail to be impressed by the immense number of calculations made by Mr. Peters in applying the test. With regard to this, a number of questions occur to me which may be worth while to set down.

It is noted that Mr. Peters has illustrated his method of testing classification relativity by a comparison of the selected pure premiums underlying the New York compensation rate revision effective July 1, 1938, with the corresponding pure premiums indicated by the New York policy year 1938 experience when it became available at a date considerably later. The first question relates to this time lag between the effective date of the rates and the time when these rates can be tested by this method.

The basis of the compensation ratemaking procedure is that the past will repeat itself. In our selection of pure premiums we endeavor to select those which correspond the closest to the relativity shown by past experience. Mr. Peters' hypothesis is that there is an underlying set of "true" pure premiums from which the indicated pure premiums of a policy year deviate in a normal frequency distribution, the deviations being due entirely to chance. Our ratemaking procedure assumes that the relativity of these "true" pure premiums will not vary greatly over a short length of time, so that the relativity during the period when the proposed rates are to apply will be the same as for the period just completed. It might be expected that the pure premium indications of the five latest policy years combined, would also deviate from the "true" pure premiums in a normal frequency distribution, with smaller deviations than shown by a single policy year. Furthermore, it is noted that the test is concerned only with classification relativity, as Mr. Peters has introduced factors in his calculations designed to eliminate any differences in rate level.

All this is by way of leading up to the question, "Could not the test have been based entirely on the data shown in the exhibits of classification experience which are regularly prepared for a rate revision?" For example the exhibits prepared for the July 1, 1941 revision of New York compensation rates show the pure premium indications of the five latest policy years, formula pure premiums derived from National experience, and pure premiums underlying the present rates. It would be a relatively simple matter to calculate formula pure premiums by rating against the underlying pure premiums. Furthermore, the data are all exhibited on the proposed rate level, so the corrections for differences in rate level which Mr. Peters makes would not be necessary.

The use of the actual indicated pure premiums for a five year period would also reduce the number of classifications with no serious incurred losses. It is noted that wherever the amount of the incurred loss is zero, Mr. Peters' calculations give a value of minus infinity, which he has had to exclude from his results. A review of New York experience indicates that we would expect a serious case for approximately each $35,000 of premium, or roughly a little more frequently than one every other year for classes with 50% credibility, and less often for classes with lower credibility. It is therefore not surprising that, when only one year of experience is considered, approximately 40% of the classifications had a serious indicated pure premium of zero.

Mr. Peters' difficulties with minus infinity arise because he has adopted the expression "$\log \frac{\text{actual losses}}{\text{expected losses}}$" to measure the relationship between selected pure premiums and actual pure premiums. In searching for a simpler relationship, the suggestion arises, "Could the relationship be expressed by the algebraic difference of selected pure premiums minus indicated pure premiums?" It would seem that these values should also have a normal distribution with zero as a mean.

The goal of all our ratemaking calculations is to arrive at a single manual rate for each classification. Therefore, as a practical question, "Could the test be applied to the total pure premium instead of testing serious, non-serious and medical pure premiums separately?" If the separate tests should indicate one method of selection gave best results for serious pure premiums, and a different method of selection gave best results for non-serious or medical pure premiums, the proper course for a best over-all result would still be in doubt.

The premise that the best fitting pure premiums selections are those which show the smallest deviations from the pure premiums indicated by the actual experience suggests the final question, "Why not adopt the indicated pure premiums as the selected pure premiums?" We would probably not care to adopt the pure premium indications of a single policy year, or even of five years for classes with low credibility. However, if we could adopt a variable experience period, for example two or three years for classes with 100% credibility and a longer period as the credibility decreases, satisfactory results might be obtained. It has been pointed out in the discussion of the ratemaking procedure by the Actuarial Committee of the National Council, that to determine formula pure premiums by weighting the state indications against the present underlying pure premium is really equivalent to extending the experience period of the particular classification beyond the standard period which has been selected as the basis of the current "indicated pure premiums." In this connection the attached exhibit which was prepared by Mr. H. T. Barber for the information of the Actuarial Committee of the Council may be of interest. (Grateful acknowledgment of Mr. Barber's permission to reproduce this table is made herewith). This table shows, for various classification credibilities, the weight accorded the pure premium indications of the various policy years represented in the formula pure premium, the formula pure premiums being obtained by weighting the indications of the two latest years against the formula pure premium from the previous revision (assumed to be the present underlying). This table assumes that any distortion due to use of National experience has been eliminated. (Page 580).

MR. A. L. BAILEY:

Mr. Peters' suggestion that casualty actuaries would do well to put to a rigorous test some of their obviously sound methods and naturally following assumptions is one of the important contributions of his paper. To newcomers to the casualty insurance field—both Mr. Peters and myself being

Proportion of State Policy Year Experience in Pure Premiums Derived by Suggested Formula:
Formula Pure Premium = Z (Indications of Two Latest Policy Years) + $(1 - Z)$ (Formula of Previous Revision)

Class Credibility:	1.00	.90	.80	.70	.60	.50	.40	.30	.20	.10	.05
Policy Year											
1 (Latest)	.5000	.4500	.4000	.3500	.3000	.2500	.2000	.1500	.1000	.0500	.0250
2	.5000	.4950	.4800	.4550	.4200	.3750	.3200	.2550	.1800	.0950	.0488
3	*	.0495	.0960	.1365	.1680	.1875	.1920	.1785	.1440	.0855	.0463
4	*	.0050	.0192	.0410	.0672	.0938	.1152	.1250	.1152	.0770	.0440
5	*	.0005	.0039	.0123	.0269	.0468	.0691	.0874	.0922	.0692	.0418
6	*	*	.0008	.0037	.0108	.0235	.0415	.0613	.0737	.0624	.0397
7	*	*	.0001	.0011	.0043	.0117	.0249	.0428	.0590	.0561	.0377
8	*	*	*	.0003	.0017	.0059	.0149	.0300	.0472	.0504	.0358
9	*	*	*	.0001	.0006	.0029	.0090	.0210	.0377	.0455	.0340
10	*	*	*	*	.0003	.0015	.0054	.0147	.0302	.0409	.0323
11	*	*	*	*	.0002	.0007	.0033	.0103	.0242	.0368	.0307
12	*	*	*	*	*	.0004	.0019	.0072	.0193	.0331	.0292
13	*	*	*	*	*	.0002	.0011	.0051	.0155	.0298	.0277
14	*	*	*	*	*	.0001	.0007	.0035	.0123	.0268	.0263
15	*	*	*	*	*	*	.0004	.0025	.0099	.0242	.0250
16	*	*	*	*	*	*	.0003	.0017	.0080	.0217	.0238
17	*	*	*	*	*	*	.0002	.0012	.0064	.0196	.0226
18	*	*	*	*	*	*	.0001	.0009	.0050	.0176	.0215
19	*	*	*	*	*	*	*	.0006	.0041	.0158	.0204
20	*	*	*	*	*	*	*	.0004	.0032	.0143	.0194
Total (20 yrs.)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	.9991	.9871	.8717	.6320

Note: Policy Year (n) Weight $= \dfrac{(1 - Z)^{n-2} - (1 - Z)^{n}}{Z}$ except that $(1 = Z)^{-1}$ is taken equal to 1.

of that order—it is rather disturbing to find the complete disregard of twentieth century developments in statistical methods of testing such assumptions and methods.

In practically all other fields dealing with numerical data—Mr. Peters mentions research workers, but the same is true of cost accountants, time study men, economists, sales analysts, and many others—the standard procedure is to analyze the data, make an assumption, and then test the assumption before applying it. Many statistical tools have been developed and tables prepared in recent decades to permit a production line processing of statistical data in making both the original analyses and the later tests of hypotheses. Mr. Peters' paper is a first step in the retooling of the casualty actuarial industry.

The analysis of variance, made use of by Mr. Peters, is one of the most outstanding and widely useful statistical tools which have become available since 1900. The general usefulness of the method and its simplicity of application have also unfortunately had the result of making it one of the most widely misused procedures. In each case to which it is applied a very careful review is necessary of the assumptions made by its application. This requirement is not brought out sufficiently clearly in most of the texts presenting the method.

The analysis of variance results in one or more pairs of variances, which are then tested to determine the probability of obtaining two variances differing from each other by as much as the observed difference under the assumption that they represent two independent estimates of the variance of a single homogeneous distribution (homogeneous in so far as the sampling process is concerned) If this probability is very small (Mr. Peters used less than .02), then the assumption that they are two estimates of the same value is ruled out as improbable and they are interpreted as being estimates of the variances of two different distributions.

The fundamental criticism which I shall make of Mr. Peters' paper is based on the belief that the variable he used:

$$x = \log_{10} \frac{\text{actual losses}}{\text{expected losses}}$$

is not one from which an estimate can be made of the variance of any *homogeneous* distribution. This is in fact admitted by Mr. Peters in his statement on page 111:

> "Since, however, that part of the deviation of actual losses from expected losses which is caused by the chance fluctuation of actual losses will obviously be distributed with larger dispersion for classifications with small exposure than for classifications with a larger exposure . . ."

It is, however, not only the differences in exposure which will cause differences in the resulting dispersion of x. The differences in accident frequencies expected for serious, non-serious, and medical losses will produce a considerable difference in the dispersions of the corresponding values of x. The same result will arise from the difference between the dispersions of the amounts of losses for individual claims for serious, non-serious, and medical losses.

Thus, in comparing the variances of the x's for serious, non-serious, and medical pure premiums, the necessary condition that they are three estimates of the same homogeneous distribution does not exist; nor is this condition met in comparing the variances of the x's for 50%-and-over-credibilities with the variances for under-50%-credibility. Actually the variances are estimates of quite widely different distributions, each of which is heterogeneous because of differences in the exposures.

The same lack of the necessary conditions is found in the tests made from Table B for the significance of $\overline{x_1} - \overline{x_2}$ and of Δ. Here the implicit assumption has been made that the ratemaking procedure is equally accurate for all sizes of classifications having less than 50% credibility. We might wish it were, but we all very much doubt it. It may be impossible to make an accurate adjustment for such differences in accuracy; but they should at least be recognized as existing.

Because of the failure to meet these conditions necessary for the application of the analysis of variance, the writer believes that the analyses presented and the conclusions drawn by Mr. Peters from these analyses are without foundation in fact. Not that they are necessarily wrong; but only that they have not been demonstrated to be true or even probable.

If we wanted to determine the variation in the salaries of our employees, some paid by the year, some by the month, and some by the week, we would undoubtedly reduce them all to a single standard basis before calculating the variance. It is suggested that such a procedure be applied to the material at hand before proceeding with the analysis of variance.

As I will show in a paper to be presented at an early date, the standard deviation of the ratio of actual to expected losses is approximately:

$$\frac{\sigma A}{E} = \sqrt{\frac{V_{2:L}}{C \cdot V^2_{1:L}}} = \sqrt{\frac{M \cdot V_{2:L}}{E \cdot V^2_{1:L}}}$$

where $V_{1:L}$ *and* $V_{2:L}$ are the first and second moments about the origin of the distribution of the losses by size of loss per accident, C is the expected number of accidents, A and E are the actual and expected losses respectively, and M is the average loss per accident. In applying this the greatest accuracy would be obtained by using the best available estimate of M for each classification. The value of $\frac{V_{2:L}}{V^2_{1:L}}$ depends on the form of the distribution of the amounts of individual losses and has been found to differ only slightly between classifications of groups of similar classifications.

Somewhat less accuracy would be obtained by using the average value of M, which is $V_{1:L}$ for all classifications within each of the three groups: serious, non-serious and medical. Such a procedure would, at least, eliminate the heterogeneity caused by the differences in exposures. Similarly, the use of the proper values of $V_{2:L}/V^2_{1:L}$ for each of the three types of losses would correct for the differences in the forms of these distributions of losses.

If we subtract the average value of the ratio of actual to expected losses, unity, from each such ratio and then divide by the standard deviation of such ratios, we shall have a function with a mean of 0 and a variance due to chance fluctuation of unity irrespective of the amount of exposure, the expected frequency, or the variation in individual losses per accident. This would also assume that the variation caused by the inaccuracy of the manual rates was proportional to the variation expected from chance alone—a fair first approximation to the actual condition. This procedure would give:

$$y = \frac{\frac{A}{E} - 1}{\sqrt{\frac{MV_{2:L}}{E \cdot V^2_{1:L}}}} = \frac{A - E}{\sqrt{E}} \sqrt{\frac{V^2_{1:L}}{MV_{2:L}}} \text{ or } \frac{A - E}{\sqrt{E}} \sqrt{\frac{V_{2:L}}{V_{1:L}}}$$

as a variable satisfactory for the analysis of its variance.

For actual losses equal to zero, this latter value would become:

$$y_{(A=0)} = -\sqrt{E} \cdot \sqrt{\frac{V_{1:L}}{V_{2:L}}}$$

and the difficulties encountered by Mr. Peters in handling the $-\infty$ values of x would not be encountered.

The separation of classifications into four groups as to credibility, such as:

a. credibility of 0%
b. credibility of 10%, 15%, or 25%
c. credibility of 50% or 75%
d. credibility of 100%

might be considered. The 0 and 100% credibility groups would seem to be of particular interest.

It is hoped that Mr. Peters will continue his efforts to find out just what the existing ratemaking procedures produce in the way of results. Knowing Mr. Peters as I do, I know that he will take this discussion as it is intended: not as criticism for its own sake, but as a possible second approximation to the end we are all seeking—the facts.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. S. PETERS:

In the introduction to my paper I emphasized that the new method of testing classification relativities proposed therein was undoubtedly subject to faults and susceptible to improvement and I asked for criticisms and suggestions. The discussions presented by Messrs. Bailey and Marshall show that this prediction was correct and that the method proposed can be substantially improved. I am very grateful for the criticisms offered and hope that they will help to develop a workable and conclusive method of testing classification relativities. The criticisms and suggestions fall into two groups; Mr. Marshall is chiefly concerned with the object and application of the method, while Mr. Bailey deals mainly with its technical aspects.

The purpose of the method developed in my paper is to test which of two different sets of pure premiums is more accurate. This is done by ascertaining which of them fits better the actual experience of the period during which these pure premiums are to be applied. This is the reason why, in the illustrations, I compared the selected pure premiums of the July 1, 1938 rate revision with the experience for policy year 1938. If the comparison were made, instead, with the indicated pure premiums for the five year period used in computing the selected pure premiums these pure premiums would not have been connected with the actual experience of the period to which they are to be applied and, besides, it is evident that the closest fit would be furnished by the set of selected pure premiums which is identical with the indicated pure premiums, a result which obviously has not much meaning.

Mr. Marshall asked whether it is not possible to devise a test of the pure premiums which applies to the total pure premiums rather than to the pure premium parts. While it may very well be debatable whether the division of the pure premium into serious, non-serious and medical portions is the most appropriate division, all experience presently available is based on these three parts and it therefore seems advisable to use this subdivision of the pure premium. It would not be possible to apply the test method to the total pure premium because the deviations of the three pure premium parts are distributed with greatly different dispersion and it is therefore impossible to apply the analysis of variance without modification to a distribution of the deviations of total expected losses from total actual losses.

Mr. Marshall's proposal to base selected pure premiums solely on actual state experience and to extend the length of the period of this experience in accordance with the credibility of the classification deserves attention, in my opinion. I intend, in the second part of my paper, to develop a set of selected pure premiums which will be based on a procedure similar to that suggested by Mr. Marshall.

Mr. Bailey's technical criticisms deal mainly with two points of the proposed test method: (1) the occurrence of values $-\infty$ and the consequent necessity of excluding these values from the computation of means and variances and (2) the heterogeneity of the distributions studied. As for the occurrence of the values $-\infty$, I agree that the method has to be revised in order to avoid this difficulty and I believe that this can be done by adding the same constant to both actual and expected losses, which constant can conveniently be chosen as a quantity proportional to the payroll exposure of the classification. While the occurrence of $-\infty$ will thus be eliminated, the problem will not be entirely solved inasmuch as the distributions of actual losses have a discontinuity where actual losses are zero and no modification of the variable used can avoid that the approximation of the actual distribution by a continuous distribution involves a certain amount of error.

There is no such thing as a homogeneous distribution of data gathered from actual experience. Homogeneity is a matter of degree and depends on where one judges it appropriate to draw a line, that is, which influences causing heterogeneity one wants to consider as negligible. For instance, even the distribution of the results obtained by throwing a die is not homogeneous in a strict sense since the effect of wear if it does not affect all faces of the die in equal degree, may change the probabilities in the later throws and, thus, may cause a slight heterogeneity of the distribution. It is conceded that the sampling distribution of the losses of a classification is strongly influenced by the size of its exposure. It had been my intention to use in any actual application of the test method relatively small exposure groups in order to avoid this influence. For the merely illustrative application of the test method given in the paper itself, I had believed that the subdivision of classifications into two groups, one with credibility of 50% and over and one with credibility under 50%, was sufficient, but I have been convinced by Mr. Bailey that as far as many of the qualitative and quantitative statements on the properties of the distributions of deviations of actual from expected losses are concerned, this grouping is too crude and is likely to distort the results. The exposure element is, in any case, of great importance only for the part of the variable called x_a in my paper, that is, the portion of the variable which is due solely to the chance fluctuations of the experience. Its influence on the part called x_n, that is, the variable due to the method of selecting pure premiums, is certainly much smaller and, besides, difficult to measure since it is the theory underlying the selection of formula pure premiums that the inclusion of a portion of national pure premiums will correct the possible unreliability of the indicated pure premium which is due to the small volume of experience in the state for which the rates are being made. I therefore believe that the omission of any correction for exposure does not invalidate the statements made in the latter part of my paper relating to the comparison of two sets of selected pure premiums since this comparison is made only for the variable x_n. However, as the portion x_a of the observed variable x constitutes merely an undesirable ballast as far as the test method is concerned, I agree with Mr. Bailey that, if possible, it would be good to reduce this ballast to the same size for all classifications irrespective of their volume of exposure in order to make the method more sensitive.

I do not believe, however, that it is suitable to use for this purpose the variable mentioned in his discussion of my paper. The variable which I used was chosen for two reasons. First, it had a symmetric distribution which was sufficiently similar to a normal distribution, although more peaked, to permit the assumption that means and variances of large samples are distributed approximately like means and variances of large samples with a normal parent distribution. The symmetry has besides the advantage that one can use the variance of the distributions as a characteristic statistic. The second reason was that by choosing the variable proposed in my paper, the observed variable x can be split additively into a portion due to sampling variations and a portion due to the method of selecting pure premiums. As a consequence the variance of the distribution could be equally split into the corresponding two portions and this in turn permits judging from the relative size of the observed variances σ^2 the relative size of the variances σ_n^2 which are due to the method of selecting pure premiums. In Mr. Bailey's variable the influence of sampling fluctuations and of the method of selecting pure premiums are mixed up in a manner in which it is not possible to segregate the one from the other and, particularly, it is not possible to judge from the size of the observed variances σ^2 for two sets of selected pure premiums which σ_n^2 is the greater.

I believe that it is possible to modify the variable use in my paper so as to avoid the occurrence of values $-\infty$ as well as to eliminate to a large extent the influence of the size of exposure of the classification involved without giving up the advantages of the original variable. I hope to present this modified and improved test method in a second part of my paper.

ON GRADUATING EXCESS PURE PREMIUM RATIOS

PAUL DORWEILER

VOLUME XXVIII, PAGE 132

WRITTEN DISCUSSION

MR. SEYMOUR E. SMITH:

Mr. Dorweiler's paper, explaining the method adopted by the Actuarial Committee of the New York Compensation Insurance Rating Board for graduating excess pure premium ratios by size of risk, serves two important functions. The first is to give a thorough exposition of a practical and sound method for smoothing a complicated tabulation of raw statistics in precise conformity with the pattern of behaviorism of the underlying data. This exposition should be very valuable both to students and members of our Society. It is this writer's opinion that those text-books of his acquaintance on the subject of statistics leave the student quite unprepared to handle the smoothing and gradation of much of the statistical data encountered in casualty insurance. It is true that these texts provide valuable material on such points as arithmetic and geometric means, index numbers, the method of least squares, etc., but the main emphasis is placed on the "normal" frequency distribution. This "normal" distribution is used as the base, on which most of the mathematics of statistics are built, and after the student has studied several chapters of the text he runs into the statement that if the underlying data does not conform fairly closely to this "normal" distribution the formulae and methods which he has so laboriously learned are not applicable. At this point the text-book leaves him stranded. Thus Mr. Dorweiler's paper is a welcome addition to the information available to students on practical methods of smoothing statistics to their underlying pattern.

At the time that this data and its graduation was being studied by the Actuarial Committee, two alternative methods received consideration. The first method consisted of the development of an excess pure premium formula of the form

$$E(y) = 10^{-ay-by2}, \text{ where}$$

$E(y) =$ excess pure premium ratio
$y =$ ratio of actual to expected losses
$a =$ a constant
$b =$ a linear coefficient expressed as a function of the premium size.

This method produced quite satisfactory results, its main advantage being that values could be determined directly from the formula without the use of charts, and that values could be obtained for any intermediate premium size.

The second method was by the graduation of the excess pure premiums by loss ratio group by the use of a second degree curve of the form $y = a + bx + cx^2$. The curves so obtained were modified by the use of minimum limitations, and the values plotted on a chart. From this chart the values were determined for each risk size and plotted on a final chart similar to Chart IV in Mr. Dorweiler's paper.

The second important function which this paper has performed, is in the development of a more intimate knowledge of the behavior of excess pure premium ratios. Five years ago this would have been of only academic interest, but the development and growth of retrospective rating over the last few years has made this subject one of prime importance. The provisions in the basic premium for losses over the maximum and savings on minimum premium risks comprise the entire insurance element in this widely used form of rating. As a result the accuracy of the excess pure premium ratios for these risks is as fully important as the standard premium rate.

The general trend in casualty insurance rating is toward closer conformity with the actual hazards and experience of the individual risk. This is as it should be, particularly so in Workmen's Compensation insurance, where the self-interests of the assured, his workmen, the insurance carrier and society as a whole all lie in the same direction—accident prevention and the speedy return to productive usefulness of injured workers. Rating methods fostering industrial emphasis on accident prevention must provide material incentive to this end through the individual risk rate. To accomplish this, in addition to the base or average rate, there must be a scientific knowledge of the individual risk's divergence from the average. Thus the importance of a sound understanding of excess pure premium ratios, which, in this writer's opinion, will assume an increasingly significant role in future casualty rating methods.

MR. STEFAN PETERS:

Mr. Dorweiler's method of graduating excess pure premium ratios constitutes the latest and, so far, the best achievement in this field. It furnishes excess pure premium ratios which, except perhaps for high loss ratios and also for large premium sizes, are most likely very close to the theoretical values.

The reviewer agrees with the opinion expressed by the author at the end of his paper that questions such as whether different sets of excess pure premium ratios should apply for risks whose hazards are substantially different or whether or not the experience before its graduation should be keyed to the permissible loss ratio for each premium size group are of relatively much greater importance than the refinements of the graduation method itself. Yet, the excess pure premium ratios are so closely linked with the distributions of risks of a given premium size by size of loss ratio and, ultimately, with the basic concepts of accident frequency and severity that it is desirable that these relationships be reflected in the graduation method or be used to test its accuracy. This possible approach to the problem, which will be illustrated below, has the added advantage of being free of the main theoretical imperfection inherent in Mr. Dorweiler's method.

The author points out in the beginning of his paper that the excess pure premium ratios y, viewed as a function of the loss ratio r and the premium size x, can be represented as a surface in a space of three dimensions and he discusses certain geometrical properties of this surface. The actual experience furnishes us with a number of isolated points which can be arranged in groups which are located in planes parallel to the r-y-plane (ungraduated excess pure premium ratios for risks of a given premium size) or in groups which are located in planes parallel to the x-y-plane (ungraduated excess pure premium ratios for a given loss ratio). The latter points were, in reality, not the direct result of the underlying experience, but obtained by linear interpolation between neighboring loss ratios. The graduation process consists in fitting to these isolated points a smooth surface with the geometrical properties mentioned by the author. Instead of attempting a graduation of the surface as a whole by a mathematical procedure, Mr. Dorweiler has limited himself to graduating separately in this manner each group of points located in parallels to the x-y plane which correspond to a number of selected loss ratios. He thus obtained a set of parallel smoothed "ribs" of his surface and removed the few remaining unevenesses between the "ribs" by graphic adjustment. This type of procedure appears to be sufficient from a practical viewpoint as long as the graduation of the "ribs" is sufficiently reliable, that is for low and moderate loss ratios for which the volume of experience is fairly large. Mr. Dorweiler gives good reasons why, if this procedure is followed, the set of "ribs" selected by him for graduation is preferable to the set of "ribs" corresponding to a constant premium size which had been chosen by others as the basis for a graduation of the surface. From a theoretical viewpoint, however, it can be objected that there exists a theoretical relationship between excess pure premium ratios for different loss ratios and a constant premium size as well as for excess premium ratios for different premium sizes and a constant loss ratio. An ideal graduation method would reflect both kinds of relationship. A general outline of how this may possibly be achieved is given in the following.

The starting point is the distribution of risks of a given premium size x by size of loss ratio r. The relative frequency of such risks with loss ratios between r and $r + dr$ be $f(r;x)dr$. A good estimate of the function $f(r;x)$ can be easily obtained from experience, but it can also be derived from basic data for which there exists a larger volume of experience as will be explained later. Since r varies from 0 to ∞ we have obviously

$$\int_0^\infty f(r;x)dr = 1$$

The expected total losses of a risk of size x are

$$E = \int_0^\infty (x \cdot r) \cdot f(r;x)dr = x \cdot \text{permissible loss ratio} = x \cdot .581 \text{ (in New York)},$$

hence $\displaystyle\int_0^\infty r f(r;x)dr = .581.$

The expected losses in excess of a selected loss ratio r_0 are

$$\int_{r_0}^{\infty} x(r-r_0)\, f(r;x)dr = x(r-r_0) \int_{\infty}^{r} f(r;x)dr \Big|_{r=r_0}^{r=\infty} - x \int_{r_0}^{\infty} \left(\int_{\infty}^{r} f(r;x)dr \right) dr = x \int_{r_0}^{\infty} dr \int_{r}^{\infty} f(r;x)dr$$

The middle terms have been obtained by integration by parts and it can be shown that the expression immediately to the right of the first equality sign is 0 not only for the lower limit but also for the upper limit for functions $f(r;x)$ representing frequencies of risks by loss ratio. We have therefore:

$$\text{excess pure premium ratio } y(r_0; x) = \frac{1}{.581} \int_{r_0}^{\infty} dr \int_{r}^{\infty} f(r;x)dr$$

Excess pure premium ratios can, consequently, be obtained by integrating twice the frequency function $f(r;x)$ and can be graduated by graduating first the function $f(r;x)$.

The function $f(r;x)$ itself can mathematically be obtained from a distribution of the accident frequency for risks of premium size x and from the distribution of accidents by size of loss. The former can be obtained from purely theoretical considerations and a knowledge of the average number of accidents which is about proportional to the size of the risk. The latter does not depend on the size of the risk and can be obtained from the experience of risks of all sizes combined which increases its reliability. If need be, recognition can be given to the variation of this distribution for types of risks essentially different in hazard. The reviewer understands that an attempt on these lines is being made by a member of this Society.

With respect to the technical details of Mr. Dorweiler's method the reviewer thinks that it would perhaps have been preferable to assign smaller weights to the experience for large premium sizes before applying the method of least squares so as to avoid having the shape of the graduated curves determined to a large extent by the experience with the smallest volume.

At a certain point the author was compelled to substitute for some vanishing excess pure premium ratios small positive quantities in order to avoid logarithms of 0. It would have been desirable to test the admissibility of this step by substituting various small quantities such as .001, .002, .003 in order to ascertain whether or not the arbitrary selection of these quantities has only a minor influence on the shape of the curve. It is evident that, if the influence should be a major one, the otherwise systematic and objective method would be invalidated.

REVIEWS OF PUBLICATIONS

CLARENCE A. KULP, BOOK REVIEW EDITOR

Approaches to Social Security. Studies and Reports, Series M, No. 18. International Labour Office, Montreal, Canada. Pp. iii, 100.

This short analysis of world experience with "social security" programs is in preparation for the development of sound post-war policies in keeping with the Atlantic Charter.

Social insurance systems date from the 1880's right up to the present time. In reviewing so broad a report as this, it is evident that many of the approaches to social security measures represent conditions which no longer exist. One of the most important conditions was the provision in the Treaty of Versailles for the organization of the International Labour Office and the study of methods of securing for labor a sounder position and living standards better than the members of labor had previously possessed.

The framework of the report segregates the assistances, or the special forms of categorical relief, from the insurances, or the careful balancing of contributions and benefits, with benefits going as a right even where actual need is not existent. This survey is very carefully done, but the history of a movement all over the world is with difficulty compressed within less than 100 pages. The suggestion in the concluding portions of the report that a particular approach has been a matter of historic conditions, sometimes of national scope, sometimes of temporary, has cleared the way for a broader consideration along the lines of minimum social budgeting.

The most helpful part of the analysis seems to me to lie in the statement of the viewpoint of Sweden, Denmark and New Zealand, where the class-consciousness that has actuated programs for labor alone has been outgrown.

This reviewer believes that in the post-war world we must escape the limitations that have accompanied the establishment and operation of most social insurance programs. These limitations include (a) strong class feeling; (b) an overemphasis on savings instead of insurance, with the result that savings are expended for programs which are believed to be desirable but are not saleable in their own right; (c) an undue appeal to the bargain instinct; (d) the implication of an exploiting absentee-landlord as representative of the rest of the population. Greater clarity of vision should make obsolete all muddy accounting, all subterfuge.

Social security can be an instrument of great value in its full recognition of important national and personal objectives. It can plan to budget adequately for the furtherance of those objectives. This report promises succeeding studies, which, it is to be expected, will be so logically compiled as to have tremendous influence upon the orderly resumption of peace-time conditions. It is extremely valuable as history. Social security administrators and legislators dealing with social security must absorb the broad outlook which it presents. In America, and in all free countries, it is to be hoped that the citizens will legislate to provide a method of cooperation for themselves by which, without demoralizing outside assistance, they provide for themselves, at their own expense, minimum floors of protection.

W. R. Williamson.

Casualty Insurance. C. A. Kulp. Revised Edition. The Ronald Press Co., New York City, 1942. Pp. xvi, 680.

Having written one book entitled *Casualty Insurance* Dr. Kulp could not very well designate another book on the same subject other than as a revised edition of the first. This is not really a revision of the first book, but a new book written by one whose contacts with the business in the 14 years intervening have greatly broadened his outlook and deepened his penetration into the essentials of casualty insurance. With this increased understanding his judicial temperament leads to sound critical comments at all important points and a balanced perspective in dealing with the highly controversial competitive problems that is admirable. Whether or not one agreed with Michelbacher's comparison of the first edition to a "profound treatise on 'matrimony' " written by "a monk in a monastery" (*Proc.* XIV, p. 431), he would instantly reject any such thought of this book.

Nor is this book, as Michelbacher said of the first, a book on workmen's compensation insurance with "a description of other casualty insurance coverages tacked on." It is a well-planned, well-balanced treatise on casualty insurance, a most difficult task, because "Casualty insurance is not a single insurance or a logical group but the name of a list of insurances" (p. 14).

The book is divided into 3 parts, entitled respectively:

Hazard, Insurance and Casualty Insurance
Casualty Hazards and Policies
Companies, Rates and Regulation

Part I, consisting of 3 chapters and covering 44 pages, is good as an introduction. By itself it would hardly prepare one without previous study of insurance or contact with the business for what follows. But it does not appear the book was intended as a "first book in insurance." In defining the scope of the book the author notes the contention whether surety bonding is or is not insurance and gives his reason, without prejudice to either contention, for not including it within the scope of his book.

In the 9 chapters of Part II all the casualty lines are discussed except water damage and a few others generally written by fire and marine rather than casualty companies. The space devoted to each line seems well proportioned to its relative importance in the casualty field. The plan of treatment follows a uniform pattern, though sometimes as with workmen's compensation, the discussion is divided into 3 chapters and sometimes it is limited to a single chapter. First, the nature of the hazard and need of insurance are outlined. If, as with workmen's compensation, special principles are involved, those are then presented. Following this is a discussion of the extent of standardization of policy forms to cover and a description of the most common policy coverages, under 6 headings: *Promises of the Insurance Company, Promises of the Insured, Rights of the Company, Rights of the Insured, The Application, Endorsements.* Thereafter is given a brief description of the rate scheme, with a discussion of underwriting problems and practices. The treatment of each of the major lines is closed with a critique of the business with regard to the adequacy with which the task of providing for insurance needs is performed. In this critique the difficulties confronting the companies are given due consideration but real shortcomings are not glossed over.

Part III is composed of 5 chapters: *Casualty Insurance Companies, Casualty Reinsurance, Manual or Classification Rates, Merit Rates* and *Regulation of the Casualty Insurance Business,* of which the one on reinsurance is written by Howard G. Crane, Treasurer, General Reinsurance Corporation.

The dyed-in-the-wool partisan of any type of carrier, including agents and the advocate of self-insurance, no matter on which side he lines up, will wince at some of the comments in Chapter 16. If the wince is not good for his soul, at least his cause should gain in respectability if not power from a careful pondering of the significance of the remark.

At one place in this chapter under the general heading, *The Best Insurance Carrier?* (Dr. Kulp reaches the conclusion that no one type is best) and the sub-topic, *The Test of Cost,* the author seems to this reviewer to have slipped into an error naturally suggested by much competitive literature, that is that a low loss ratio is *per se* an index of low cost. On page 474 he shows comparative loss ratios for stock and mutual companies for certain lines and all lines combined for 1931-1940 and for 1940 alone. The "all lines combined" loss ratios for the stock companies in both comparisons are about 90 per cent of those for the mutuals. He says, "On their face, the stock companies have a distinct advantage," though he points out that the higher loss ratios of the mutual may be due to a lower initial rate. To this reviewer it has always seemed that the larger the proportion of the premium dollar (net after dividends) returned to the insured in benefits and services the more efficient the carrier's record. Since the stock companies' policies are not in general participating, the significance of this comparison seems to be directly the reverse of the quoted statement, except from the point of view of the stockholder.

The discussions of *Manual Rates* and *Merit Rates* are to this reviewer the most interesting. The following quotations show the author's grip on the subject:

From the summary of the chapter on *Manual Rates*:

> Only the broadest of generalizations is possible on a subject as complex and heterogeneous as that of casualty rate-making. Premiums are not made, and never successfully will be made by mechanical or mathematical methods alone . . . judgment is a part of every rate-making plan however elaborately statistical-actuarial. It follows that no system of rate-making is a perfect or permanent one: even if it were perfect at a given time and place it would not long remain so because the conditions under which it must operate change frequently and sometimes violently. This is no excuse for rate-making by guess or by favor, and does not mean that the public or the supervising authorities are less interested in equitable and adequate rates.
>
> It is ironic that exactly where [in workmen's compensation and automobile liability insurance] the rate maker attempts to meet the highest standards of precision and equity he is most open to criticism and complaint.
>
> The most pressing rate-making question both in compensation and automobile liability is that of the proper allocation of administrative expense loadings.

From the critique on experience rating:

> The advantages of experience rating are perhaps obvious. . . It has inherent limitations and certain operating defects. . . . That the principal criticisms of experience rating are inherent in the kind of plan it is and not in its details is clearly shown by the extent to which retrospective rating emphasizes responsiveness and foregoes individual risk cost stability.

In regard to retrospective experience rating:

> At the very best, it is a cost-plus plan for relatively few risks. . . . In the nature of things, the positive contribution of retrospective rating to underwriting profit as distinct from premium volume seems limited . . . the application of retrospective rating by stocks, as is suggested, to all liability risks would go so far toward participating insurance as to make traditional underwriting distinctions between stock and mutual nearly meaningless.

In the last chapter self-regulation receives as careful consideration as state regulation. The chapter closes with a discussion of the pros and cons of federal regulation and closes with the wise comment, "Whatever the developments, the states, under observation by a federal authority many times stronger than at the turn of the century, are bound to put on an improved performance if they are to continue their insurance supervisory function."

The book is scholarly as evidenced by 1498 footnotes of which more than half are by way of documentation, and by a bibliography of 10 pages, ranging from company organs and publications of the public relations groups of each class of company to 8-volume works on law and national and international official publications. The style is clear and where it might be ponderous it is so shot through with clever comments as to make it entertaining. I concur with one of my students to whom I assigned it for independent reading: "It is certainly a swell book."

A. H. Mowbray.

Federal Crop Insurance in Operation. J. C. Clendenin. Wheat Studies of the Food Research Institute, Vol. XVIII, No. 6, March 1942. Stanford University, California. Pp. 62 (pp. 229-290 of Vol. XVIII).

This study under the auspices of the Food Research Institute by an Assistant Professor of Finance at the University of California, Los Angeles, of the three year record of the Federal Crop Insurance Corporation is interesting, timely and authoritative. Though without practical experience in the insurance business, Dr. Clendenin has made insurance one of his fields for study for several years and is thus better equipped for this investigation than many agricultural economists who might have been asked to undertake it, and because of his training as an economist better than one whose life work had been in some field of insurance.

The need of our farming industry for all-risk crop insurance was presented to this Society by Dr. V. N. Valgren of the U. S. Department of Agriculture in May 1922 (*Proc.* VIII, pp. 186 ff.) along with an account of the difficulties which private companies had encountered in trying to meet it. Other attempts of private enterprise also failed. Spokesmen for the agricultural interests and students of their problems, rather than "dirt farmers," pressed on Congress the importance of meeting these needs. Under this urging Congress established in 1938 the Federal Crop Insurance Corporation. The Corporation began operations in 1939, insuring wheat crops only, on the basis of premiums and indemnity in kind. In 1942 cotton is also to be insurable but of course only the experience on wheat is yet available for study.

The study is divided into 8 parts, to which are added 5 appendices of notes and 7 pages of tables showing material underlying the report.

Part I gives a summary view of the history of the experiment to date.

The most significant feature of this is a table of premiums and losses for the years 1939, 1940 and 1941, which shows losses in excess of 150 per cent of premiums each year, losses which would undoubtedly have led any private carrier promptly to abandon the field, if indeed they did not send it into bankruptcy. It may however be appropriate for the government to absorb such losses in a pioneer experiment of great importance to the entire nation.

Part II discusses the *Elements of the Contract,* noting that it is an insurance "in kind" rather than cash and that it is not insurance of crop quality. The application which is the basis of the contract is reproduced. It appears that it is Dr. Clendenin's view that adverse selection has much to do with the bad loss experience and that an earlier date for firmly closing the contract by collection of or commitment for the premium would give considerably greater protection against this. He discusses this in part in this section under the topic, *Collection of Premiums.* Other topics in this Part are: eligibility for insurance, the insurance unit, the risks covered, adequacy of the coverage, adjustment of claims and transference, assignment and garnishment.

Part III, dealing with *Actuarial Features,* will be of most interest to members of this Society. It will awaken in older members sympathetic memories of resort to anything apparently pertinent in the efforts to solve the pioneer problems of workmen's compensation insurance. It will emphasize for all of us what we have discovered in other kinds of insurance about the importance of the personal element, especially if the interest of the insured may lead him to action or inaction to the detriment of the insurer, as well as the need, on this and other grounds, of rates fitting individual risks as closely as possible.

Part IV outlines the scheme of administration and its interrelations with other parts of the U. S. Department of Agriculture and the A.A.A.

In Part V we learn of the extent and manner of participation in the plan. As yet (1941) only about one-sixth of the acreage seeded to wheat is covered. But all wheat-growing states are represented and in Illinois, for example, there is a 30.8 per cent participation. Whatever may be one's interest in the crop insurance problem, this section should receive attention. Among the topics discussed are: effect of differences in premium rates, the individual who insures, selling crop insurance, point of sales resistance, new and repeat business, and future prospects.

Other public policy aspects are considered in Part VI: the need for the insurance, the question whether insurance tends to keep submarginal lands under cultivation, the cost of storage of the premium wheat and the relation of the scheme to the "ever normal granary" idea.

Operating finances are discussed in Part VII, and the question of expenses and whether the scheme can be self-supporting, and if not, whether it should be continuously subsidized.

Part VIII summarizes the conclusions and contains some very interesting suggestions for meeting the problems noted. The author's final conclusion is:

> In final summary, it seems fair to say that federal crop insurance has not yet proved that it can provide enough farm security, on a sufficiently equitable and satisfactory basis, to justify its cost. But it has not yet proved its inability to do these things. The goal of the program is eminently desirable, does not seem improbable of attainment, and justifies experiment with a single crop until the attempt is either successful or proved definitely unlikely to succeed.

A. H. MOWBRAY.

Industrial Accident Prevention. A Scientific Approach. Second Edition. H. W. Heinrich. McGraw-Hill Book Company, New York and London, 1941. Pp. xii, 448.

A great deal has happened in industrial accident prevention since the first edition of this pioneer work (reviewed *Proc.*, Vol. XVII, pp. 302-306), and even apart from World War II which is raising accident rates as well as totals, a second edition is welcome. Indeed the impetus for, as well as much of the progress of, the new industrial safety movement of the thirties is to the credit of Mr. Heinrich and the first edition of *Industrial Accident Prevention.*

The second edition is essentially a restatement of the principles and a refinement of the technique of what is now referred to as the Heinrich method. Summarized briefly, the principles are:

> The occurrence of an injury invariably results from a completed sequence of factors. This sequence or chain of causes runs in order of time: social environment and ancestry; fault of person; unsafe act or mechanical or physical hazard; accident; injury.
>
> The key to effective accident prevention lies neither in the injury nor in the accident that precedes it but in the central element in the sequence: an unsafe act or mechanical or physical hazard. Eighty-eight per cent of all industrial accidents are primarily due to unsafe acts. Analysis may be necessary not only to discover this central element but in turn also the causes that precede and explain it. The essential of effective prevention however is elimination of this central element.
>
> Accident prevention is not only the responsibility of management but a major responsibility and one that, given application of the principles that underlie all managerial functions, will yield proportionate results.

One concurs with the statement of the *Preface* that "in no way has there been any alteration of the fundamentals on which the original publication was conceived." There are evidences of course that like any other the Heinrich philosophy must constantly evolve both to make itself more consistent internally and to adapt itself better to the world it seeks to explain. The definition of *accident*, for example, becomes:

> An event in which (a) the contact of a person with an object, substance or another person, or (b) the exposure of a person to objects, substances, other persons or conditions, or (c) the movement of a person, causes personal injury or suggests the probability of such injury.

Even to this must be added a note, pointing out that the definition is to include occupational disease. But even with the note, it is not clear what kind of event would constitute an accident in the case of occupational disease exposure. And what in this same case are "near accidents ... those that produce no injury whatever, although having the potentiality of doing so"? Identifying as accidents "visible evidences of man failure that result[ed] in narrow escape from injury" would appear to be difficult enough when "dropping or fumbling of tools or other objects, and falls of persons" are involved but what is a narrow escape from carbon bisulphide poisoning? These difficulties in this case are probably due to a natural desire to round out a universal system of prevention. They do not impair the validity of the system, they suggest that this like any system has limits.

The Heinrich fundamentals have not changed but this is not to say that the second edition is a quick rewrite of the first. Time and experience have worked to modify both some of the author's basic assumptions and his technique for putting his system into operation. The modification of basic assumptions is generally a matter of a change of emphasis: for example, machine or physical as against personal causes of accident are weighted more heavily (though the statistical weights are still 12 and 88 per cent respectively); there is for the first time a chapter on safety organization as such (which to be sure includes the Heinrich technique); there is a general note of caution that cause analysis will usually not penetrate beyond the unsafe act or mechanical-physical hazard. On this last point, "Underlying accident causes" arising out of "faults of management and supervision ..." are discussed very briefly; those arising out of "causes of a social, environmental, and inheritable nature ..." are "merely alluded to," a sort of afterthought in the *Summary* chapter. The most striking and significant indication of changed emphasis occurs in the author's restatement of the preventive possibilities of his system. In the first edition (p. 45) he concludes that "98 per cent of industrial accidents are *preventable*." In the second (pp. 20, 106) "98 per cent of industrial accidents are of a *preventable kind* ... 50 per cent are *practicably preventable* and 48 per cent could be prevented if it were not for the practical consideration of cost and interference with production and profit" (italics supplied). There is no specific explanation for this modification but it lies no doubt in the statement on p. 109 that "it is quite probable that at least a 50 per cent reduction in the existing frequency and severity rates of industrial accidents may be brought about without delving into [underlying] causes..." In short, given resources in money, management and imagination unfortunately beyond the average business, the earlier ideal estimate holds; in a world of stubborn limitations, human and financial, the modified estimate provides a more practicable goal.

The exposition of Heinrich's technique, as the author says, is changed principally in the direction of increased detail. Despite disclaimers that he is not a professional psychologist there is much new material on "methods of appeal" suitable for "creating and maintaining interest in safety," of which self-preservation, loyalty and humanity are examples. There is also a new chapter on fatigue. The most important examples of expanded illustrative detail are the chapters on *Corrective Action* and *Safety Organization.*

That the Heinrich idea has made a major contribution in its field is clear. The Heinrich cause code has been adopted in principle in the Pennsylvania state industrial accident report forms. It has been approved by the American Standards Association and affiliated public and private organizations in the safety field. Increasing use, not always with credit, is made of the central Heinrich idea by employers and insurers. But the obstacles to further extension are many and real. A weakness of the book from one point of view is that the author seeks to keep the reader's eye always on the possibilities and advantages of his technique. No doubt deliberately, he pays little or no attention to limitations and obstacles. The result sometimes is not only an unbalanced picture but an unclear picture. For example, the author laments the fact (p. 341) that "accident investigation and the tabulation of accident facts have not progressed much beyond the stage" he found when he began his reforms. If, as the *Summary* concludes, "Only ordinary ability and common sense are required either to analyze accidents or to select and apply preventive methods," if "a more favorable set of circumstances could hardly be imagined," this inertia hardly makes sense. A balanced treatment calls, in the *Summary* at least, for a statement of the cons as well as the pros; while the pros are repeated over and over throughout the book, illustrated by a thousand apt examples, the cons are referred to now and then if at all, as it were on the fly, and not at all in the *Summary.* The chapter on occupational disease, a new one, is a more specific example of unbalanced treatment. If the subject had to be added (the difficulties are obvious) it should have been given more than the cursory attention possible in 9 pages. Actually as the author says, "there is much difference in detail and technique" between accident and disease prevention and anything between a simple aside and the extended treatment possible in a large book is bound to be futile. The occupational disease issue is so basic, at once so broad and so pervasive, so compact of human, social, financial and economic factors, as actually to present a new and different problem.

But after all, having so much it is ungrateful to ask for more. This is not only a pioneering work, it is and means to be propaganda. Its limitations are those inherent in propaganda. It were possible perhaps to add something to this combination of engineering, research and able exposition but it would be at the expense of the quality of inspired salesmanship, of "the something added" that makes the man and the book really unusual. There have been many books on industrial safety but none in the reviewer's knowledge that has had the influence of this one.

C. A. KULP.

Marketing Life Insurance, Its History in America. J. Owen Stalson. Harvard University Press, Cambridge, 1942. Pp. xl, 1911.

Any book running to more than 950 pages is a formidable affair for author, reader and reviewer alike. In the present instance the 25 substantial chapters are buttressed by a dozen charts, by 31 tables in the text, by 45 separately numbered appendices, for the most part statistical and some of them very long, and by 1363 notes and references ranging in bulk all the way from mere citations of authorities to elaborate quotations and explanations as interesting as anything in the text itself.

Dr. Stalson, toward whose doctorate in Commercial Science in the Harvard School of Business Administration a large part of this material had previously been submitted as a thesis, was equipped for his task by mature experience in the selling of life insurance as well as by access to vast public stores of material concerning the history of life insurance and to voluminous correspondence in private archives.

In the text itself, which is limited to 648 pages, he gets off to an excellent start in Part I with a basic survey of the problem of risk as it affects the individual in our complex economic structure and of life insurance as a device for meeting an inescapable part of the individual's risk.

Part II is chiefly devoted to a history of abortive attempts in America before 1843 to meet this risk. Because these attempts have little enough to do with subsequent life insurance projects and practically nothing with marketing the product, this section appears to bog down in significance and interest.

Parts III and IV carry the history from 1843 through 1858. If the author finds little here of genuine significance for those today responsible for agency development, it is the fault of early selling, not of the author.

Parts V and VI bring the survey of life insurance developments, with special reference to the soliciting agent and the general agency system, down to 1905 and include a well-balanced consideration of fraternal and assessment insurance, the rise of industrial life insurance, the appeal of the tontine plan and the competitive orgy of buying life insurance sales.

Part VII concludes the volume with 3 important chapters of just over 100 pages under the broad general title, *Emerging Maturity, 1905-1941.* The penultimate chapter, *The Trend toward Informed Marketing,* contains most of what the harassed agency executive will find practically profitable in the study of the highly complicated problems of distribution which must always confront life insurance as an institution.

As a painstaking attempt to assemble for ready reference nearly everything in the history of life insurance in the United States (and occasionally beyond its borders) even remotely related to the sale of policies, the work has great merit. As one reads the full record, there emerges or appears to emerge a curious divided allegiance in the author's own mind. As a salesman he is over-awed by the achievements of big producers like Hyde in the home office and Rosen in the field; as a historian he records genuine appreciation for the highly conservative attitude towards products and sales methods so vigorously expounded by men like Greene. He is impressed on the one hand by the great social contributions of life insurance as an institution in this country, yet feels strongly, and states more than once, that in getting out their product as well as in promoting its sales the companies have shown and still show a deplorable lack of intelligence and imagination. The merits of savings bank life insurance, at least in Massachusetts, are extolled, and the repeated use of the word, *forfeiture,* throughout the text without very exact definition of that term perhaps implies that the buyer of a policy who later suffers a change of heart should not be expected on withdrawal to meet his fair share of acquisition expense. It may be an exaggeration to suggest that in Dr. Stalson's Utopia the life insurance salesman will be an honored public servant working on a substantial stipulated salary whose energies will be chiefly directed to the placing of huge volumes of renewable term insurance.

The volume is helpfully indexed, although a simple test check reveals a curious omission. The reference on page 501 to disability benefits is indexed under the company originating them, whereas the sole index reference under *Disability* is to a cursory comment on page 640 in which the wrong company is inadvertently named as originator. It is somewhat remarkable that a volume devoting page after page to the tontine experiment should disregard so completely the history of disability coverage attached to and made a part of so many contracts of life insurance. Certainly in its heyday this feature was almost unanimously hailed by life insurance agents as just the kind of daring departure from mere precedent and of imaginative underwriting in the interests of insurance salesmen that Dr. Stalson frequently advocates. Is he quite sure, one wonders, that a departure from the tradition of regarding permanent plans of life insurance, and particularly the whole life policy itself, as the backbone of the business in favor of more and merrier types of term would produce results in the long run any happier than those which arose from the adventure in disability? The two index entries under Halley, on the other hand, show that the earlier statement of date by century is a mere slip of the pen which did not get caught. In general however the volume, considering its magnitude, is extremely well printed and exceptionally free from even such casual blunders.

Early in this review the special interest of some of the notes was mentioned. As an example, the curious reader should turn to the eighteenth (and last) on Chapter I, beginning, "This suggestion that our schools shall predispose students toward buying insurance is not made with the thought that selling insurance shall be made easier for the insurance solicitor's sake." It is a favorite and effective device of Dr. Stalson's after an array of facts to supplement them with an array of questions. The reviewer, in emulation, would like to propose this query: If our schools and colleges are to go in for courses stressing the desirability in coming years of certain specified goods and services, should they not, in fairness to our citizens-to-be, equip them likewise with reasonable defensive armor by introducing courses in sales resistance?

Henry H. Jackson.

Personal Factors in Safe Operation of Motor Vehicles. Leon Brody. National Conservation Bureau, New York City, 1941. Pp. 96.

This study is of special interest to those interested in driver training. The results of the various tests are both significant and challenging to teachers and police officers who may be interested in improving driver technique. The recommendations of the study on page 8 clearly suggest the pattern that driver examinations may take in the future. The fact that reaction time has been receiving undue emphasis as a cause of accidents may be shocking to some. Furthermore, the study throws light upon the fact that knowledge of driving principles alone does not guarantee freedom from accidents.

The publication concludes with a series of case studies of accident-repeaters. Of special interest to the reviewer is the scientific approach used by the author in arriving at the conclusions of his study.

R. E. LeAnderson.*

Public Liability Hazards. Reginald V. Spell. The Rough Notes Company, Indianapolis, Indiana, 1941. Pp. 284.

As the preface indicates, the text is written "to acquaint those engaged in the insurance business with the hazards which are inherent in certain operations and with some of the situations that may rise in connection therewith."

* Guest Reviewer. Head, Department of Safety Education, Detroit Public Schools.

It does not undertake to cover such highly specialized fields as motor vehicle insurance or insurance of the employer-employee relationship hazard, addressing itself almost in the entirety to public liability. In the first chapter are discussed in general outline the basic liability coverages, including owners', landlords' and tenants' liability, manufacturers' and contractors' liability, owners' and contractors' protective liability, elevator liability, contractual liability, product liability, employers' liability, principals' protective liability, residence liability, property damage liability, physicians' and surgeons' liability, druggists' liability, hospital liability, sports liability, safe deposit liability, warehousemens' liability and the comprehensive general liability policy. These are briefly described, giving mainly the coverage clauses and the exceptions. Presumably these are quoted from forms actually in use, and the notation of coverage is all that the author's purpose requires.

What is said of employers' liability is possibly too brief. Some mention should be made that in all states a straight employers' liability policy cannot be issued; possibly also that there is question whether the liability coverage in the workmen's compensation policy is inclusive of all employers' liability or merely of liability arising out of an "accident." But since the author indicates that he does not profess to cover this field in detail, this is perhaps excusable.

The book goes on to indicate the various cases in which liability for damages has been sustained in some 24 important areas or activities: agricultural pursuits, amusement centers, attractive nuisances, blasting operations, boards of education, charitable institutions, contractual obligations, defective products, dental malpractice, druggists' liability, elevator accidents, estate management, golfing activities, hotel keepers, lateral supports, municipal governments, physicians and surgeons, residential exposures, restaurant operators, safe depositories, sidewalk maintenance, storage warehouses, storekeepers and theatre management. The list has a somewhat miscellaneous look. To keep to the main scheme, which appears to be based on classification by type of activity, the chapters on attractive nuisances, lateral supports and sidewalk maintenance should have been marked as incidents of the ownership of real property. The chapter on defective products should have been marked "manufacture and distribution of products," the chapters on dental malpractice, druggists' liability and elevator accidents should have been marked respectively, "dentists," "druggists" and "elevator operation and maintenance."

This slight lack of consistency should not obscure the fact that the chapters are interesting and informative. That on golfing activities is particularly so; close seconds in the writer's estimation are those on attractive nuisances, druggists' liability and physicians and surgeons. The chapter on municipal governments seems a bit sketchy. It must however be borne in mind that the author is not writing a book on torts but one designed to bring to attention the great variety of cases in which liability suits have been successfully maintained, in order to emphasize the need of insurance protection. With this object all of us who are in any way connected with insurance companies should be in sympathy, so long as he sticks to the facts, and this in the main he has done.

One exception, perhaps, is the initial statement in Chapter XIX: "being civilized we no longer live in caves." The war is rapidly teaching us lessons both as to the extent to which we are civilized and to which we have put cave-dwelling behind us.

For the purpose for which it is designed, the book is a good one. The author does not fail, somewhere towards the end of each chapter, to emphasize either the chance a property-owner takes in having a liability case go to a jury, or the advisability of insurance, or both. Word of commendation is well merited for the style. The reviewer appreciates better than most a writer who is careful about his sentences and paragraphs. The format is rather attractive, though the reviewer would have preferred a slightly more pronounced distinction between type in the text and that used for quotations and notes. The breaking up of the chapters by centered headings is very intelligently done and adds much to the text's appearance.

CLARENCE W. HOBBS.

Research Contributions to Safety Education. Vol. II. Center for Safety Education, New York University, New York City, 1941.

Teacher Preparation for Safety Education. Nathaniel O. Schneider. Pp. 26.

The whole problem of teacher preparation for safety education is a challenging one. The author has made a careful study of work now done in the various states and makes suggestions for the improvement of the present program. The study makes excellent background material for every student of safety education.

Teachers who wish a concise overview of the nationwide program as it is now in existence will find this study the most recent and thorough of the many that have been made recently.

Techniques for the Control of Motor-Vehicle Accidents. Edward L. Yordan. Pp. 30.

The author of this study has pried into the human factors involved in accidents and has indicated in detail suggestions that can be followed to reduce injuries. Of special interest is the *Check list for car fitness* which can be used conveniently by motor vehicle bureaus or police officers.

This study points out the various aspects of the program that need to be high-lighted in the future. Of particular interest is the portion on the general problem of motor vehicle inspection.

Measuring Driver Attitudes. Elmer B. Siebrecht. Pp. 29.

This interesting study involves the technique of confronting persons with a series of statements involving 5 positions designed to indicate attitude. This technique is not a new one and has been used by other research workers. While the number of cases on which the study is based is not large the results are interesting. Those who have been looking for a test to measure driver training attitudes will be interested in this text.

R. E. LeAnderson.*

Safety Supervision. Vernon G. Schaefer. McGraw-Hill Book Company, Inc., New York City, 1941. Pp. 352.

There are two approaches to industrial accident prevention, one through the safeguarding of building and mechanical equipment and the other through the control of human behavior. *Safety Supervision* has to do with the latter; it is wholly concerned with problems of supervision in the promotion of safe practices among workmen. A supervisor in his contact with his men has to do with habits, emotions and personalities and these are with what he is concerned in his effort to have work done safely. These things are discussed fully and excellently in Dr. Schaefer's book.

The proper selection, placement and training of workers for their jobs is another important matter if men are to work without accidents and Dr. Schaefer also discusses these pre-production problems in their relation to the various departments in an industrial plant. The situations that are found in industry are considered and practical solutions in line with good management are suggested.

Safety Supervision covers 352 pages and contains 16 chapters dealing with such topics as *Organization for Safety, Habits in Relation to Safety, Emotion and Safety,* and *Fatigue, Monotony and Accidents.* Non-technical language is used throughout in dealing with even highly complex subject matter. The book should prove useful and interesting both in the classroom and among industrial executives and supervisors. In fact it will be good reading for anyone who has an interest in human behavior and psychology.

Albert W. Whitney.

* See note, p. 586.

Social Security Reserves. J. S. Parker. American Council on Public Affairs, Washington, D. C., 1941. Pp. xvi, 340.

The value of this book lies in its sincerity, its conviction that accounting responsibility is even more important in large than in small matters, in its demand that muddy analysis shall give way to adequate, logical treatment. Like many a doctoral dissertation on practical matters, it reveals the basic unfamiliarity of the author with some of his most important materials. His bibliography is impressively long; yet he cannot have tapped very deeply the reservoir of available, unwritten knowledge.

Possibly such treatment is eloquent of unmet challenges, of incompleted work, perhaps of unrealized responsibility, by and among actuaries. The author has read widely, but there is little evidence that he has discovered some of the basic realities as to the differing motivations of individual life insurance, of employer pension programs, of the whole social insurance movement. Actuaries with social and private insurance training should help to clarify the issues. It is not necessary for the state to build a mammoth staff retirement system. When the state postpones benefits, it is not essential to raise contributions greatly in excess of current requirements, the surplus of which will be used for other purposes. The state must budget for the responsibilities it assumes. Social insurance needs other reforms much more than it needs increased reserves. Actuaries, as the author says, raised many of these questions. They should resume their consideration.

W. R. WILLIAMSON.

State Official Guidebook for Traffic Safety Education. National Conservation Bureau, New York City, 1942. Pp. 138.

This publication of the National Conservation Bureau is a joint project of the American Association of Motor Vehicle Administrators and of the Center for Safety Education, New York University.

For those who wish a complete overview of the problem of traffic safety education and an up-to-date statement of the problems now confronted by state agencies concerned with traffic, this book will serve a definite need. It gives in detail an unlimited number of suggestions for organizing traffic safety activities in state departments. For those who are charged with safety work in elementary schools a large number of practical sources of materials and aids are listed. There is hardly an aspect of the traffic safety education problem that is not touched on.

The driver training program is analyzed and data are presented which indicate the progress that has been made in this direction.

The *Analysis of Traffic Safety Education Functions of the State Departments* is especially well written and contains many desirable objectives. The Appendix suggests a large number of bibliographical references that can be used by administrator, teacher and student alike.

R. E. LEANDERSON.*

Statutes Affecting Liability Insurance. Association of Casualty and Surety Executives, New York, 1942. Pp. 107.

This is a pamphlet giving statutory references and a brief digest of the provisions of certain classes of laws relating to automobile liability and general liability insurance. The headings indicate that its chief intent is to show statutory treatment of actions of tort likely to be involved in a policy of automobile or other liability. These headings are:

(1) Liability to guests
(2) Service of process on non-resident motorists
(3) Vicarious liability
(4) Policy requirements and insurer's liability
(5) Lien for medical treatments
(6) Survival of actions
(7) Actions for wrongful death
(8) Settlement of tort claims and actions
(9) Venue of tort actions
(10) Contribution among joint tort-feasors

Since so much has been given, it is ungracious to ask for more; and in view of the source whence it comes it may be fairly assumed that the topics selected are such as chiefly interest the claims departments of the companies. The main thing in making a compilation is not to confuse it by trying to include too much.

The reviewer has not undertaken a check of the references; he has every reason to hold in respect the compilers thereof. There are two federal statutes that might perhaps have figured in the compilation. The section on actions for wrongful death might properly include the federal statute as to wrongful death on the high seas (Act March 31, 1920, 46 U.S.C.A., secs. 761-767). Another federal law that comes up once in a while is the Act of Feb. 1, 1928, 16 U.S.C.A., sec. 457, as to application of state liability laws on property of the United States. A brief note of court decisions interpreting the various laws cited would of course be valuable but might be a considerable burden to prepare.

* See note, p. 586.

One does not expect of course that the pamphlet would try to cover such special fields as maritime torts, employers' liability and tort actions against states, municipalities and other public or quasi-public bodies, nor that it would try to cover such matters as rate regulation, regulation of reserves and other details of insurance supervisory law. The pamphlet has envisioned a moderate objective and would seem to have attained it very well.

CLARENCE W. HOBBS.

Traffic Survey Manual. National Conservation Bureau, New York, 1941. Pp. 108.

The *Traffic Survey Manual* is a comprehensive presentation of methods, forms and procedures necessary in analyzing local traffic conditions.

The manual sets forth in detail the organization and operation of city traffic surveys. Numerous suggested office projects and field projects are discussed and recommended data sheets and forms are reproduced in the manual.

This manual should prove of value to any community inaugurating a safety campaign or wishing to supplement its present campaign. However, as the manual itself points out, the traffic survey is merely the beginning of the safety campaign and must be supplemented by other activities and procedures for the prevention of accidents on streets and highways.

W. J. CONSTABLE.

PUBLICATIONS RECEIVED

Financial Qualifications by States for Casualty, Surety and Miscellaneous Companies. Spectator Company, Philadelphia and New York, 1942.

Essentials of Occupational Diseases. Jewett V. Reed and A. K. Harcourt. Charles C. Thomas, Springfield, Illinois and Baltimore, 1941.

Review of the following publication appears in the current numbers of the *Transactions* of the Actuarial Society of America and the Review of the American Institute of Actuaries:

The Fundamental Principles of Mathematical Statistics with Special Reference to the Requirements of Actuaries and Vital Statisticians, and an Outline of a Course in Graduation. Hugh H. Wolfenden. Published for the Actuarial Society of America by the Macmillan Company of Canada, Toronto, 1942. Pp. 394.

CURRENT NOTES

THOMAS O. CARLSON, CURRENT NOTES EDITOR

GENERAL

War Measures

A number of changes have been made in the rules and rating plans of the casualty insurance business since the defense effort began in order to accommodate them to the changing conditions caused by the war.

In September, 1940, the rules were amended to permit pro-rata cancelation of liability, glass and burglary insurance policies by men entering the armed forces.

In the early part of 1941 there was adopted in many states the first of the rating plans for the writing of workmen's compensation insurance on the large defense projects which the government had initiated. Under this plan a discount which reflected reduced expense provisions, was allowed from the standard rates for "United States Government Defense Projects for which compensation and employers' liability insurance is approved or recommended by the United States Government or any agency thereof." The stock companies generally adopted a discount of 20% which contemplated a maximum total production cost allowance of 5% of the reduced premium. The mutual companies generally adopted a discount of 10%. Later as was noted in Current Notes in Part II of Volume XXVII of the *Proceedings* a comprehensive rating plan for the writing of compensation and liability insurance for defense projects was adopted applicable in most states. At about the same time there was adopted in Pennsylvania a premium return plan applicable to compensation insurance on defense risks.

In the Current Notes of Part I of Volume XXVIII of the *Proceedings* mention was made that the standard provisions of the Automobile Liability policy had been changed so as to eliminate the exclusion of coverage while the automobile is being used for carrying persons for a charge. This was intended to save gasoline by allowing workers to carry fellow-employees without thereby endangering their liability insurance coverage.

In February of this year the policy of permitting pro-rata cancelation by the insured under certain conditions, which was initiated in September, 1940, as already noted, was extended to insureds whose operations are discontinued by reason of priorities or other war conditions.

On May 1 it was announced that nearly all the carriers would construe their automobile liability policies, without any endorsement being necessary and without extra premium, as covering emergency uses of the insured's automobiles in furtherance of the war effort or for civilian defense. On May 6 a similar announcement was made on behalf of the insurance companies writing the other automobile coverages.

Announcement was made in May that because of the effect of gasoline rationing the requirement with regard to past mileage in the private passenger automobile rating plan would be dropped. Class A-1 rates are now applicable for those motorists who estimate that they will not drive more than 7,500 miles in the next twelve months and who meet the other requirements. Formerly they were required also to state that the mileage for the past twelve months was not over 7,500. This change was made retroactive to March 1.

In June announcement was made that in the event an insured who has an automobile liability policy subject to the Safe Driver Reward Plan cancels his insurance because of his induction into the armed forces the Safe Driver Reward, if otherwise earned, is payable on the basis of the earned premium to the date of cancelation. This relief was also extended in the event of cancelation because of inability to continue use of the automobile due to the effect of priorities, rationing or other war emergency conditions.

Curtailed Statistical Program

The statistical program under which the insurance companies report their experience on liability, burglary and glass lines to the rating bureaus has been greatly curtailed because of war conditions.

The reasons for this retrenchment are two-fold: first, the insurance companies have been finding it difficult to retain competent personnel and, secondly, it is felt that the rapidly changing conditions during the war period will produce experience which will not be too reliable a guide to the conditions which will prevail when the rates based on such experience would normally be made effective.

Under the abridged program territorial experience will continue to be reported for private passenger and commercial light cars written on a specified car basis, but classifications will be combined for the commercial cars. Most of the other automobile classifications will be reported on a combined basis, either statewide or countrywide.

For liability other than automobile, for burglary and for glass insurance the experience of all classications under each type of coverage will be combined and premiums and losses will be reported on a statewide basis.

The revised program applies to business written on and after January 1, 1942. The program with regard to automobile liability insurance has been put into effect in all States except Virginia and Massachusetts. In Virginia the program was under consideration by the state authorities at the time these notes were written. For the other lines the program applies countrywide.

Casualty Experience Exhibit

The following changes have been made in the New York Casualty Experience Exhibit blank for 1942.

A new column has been interpolated in Parts 1, 2 and 3 reading "Group Accident and Health." This is to conform the Casualty Experience Exhibit to the Annual Statement Convention Blank for 1942 in which this line of business is being segregated for the first time.

A new footnote (g) has been inserted in Part 1 for the Boiler and Machinery columns, referring to line 28, "Inspection and Accident Prevention" and to line 40, "Adjustment Item." The footnote reads as follows:

> "Include in this item the net inspection expense after deducting inspection income (less profit made on inspections for outside organizations other than insurance companies) appearing on page 2, item 21 of the Annual Statement.
>
> "Enter on line 40 (adjustment item) this inspection income in order to balance this exhibit with the net gain from underwriting appearing on page 8, item 26 of the Annual Statement."

Part 3, Loss Ratio Experience on New York State Risks, is to be reported on a direct basis for calendar year 1942 instead of the net basis previously used.

There will be no supplement to Part 2 calling for commissions incurred on direct business in the State of New York, with ratios to net direct premiums written, although the 1941 Blank warned carriers of this probable requirement. The New York Insurance Department has agreed to pend this requirement for the time being.

AUTOMOBILE

Classification Changes — Canada

The automobile revision made effective last April in Ontario, Quebec and Eastern Canada by the Canadian Underwriters Association, included a classification procedure analogous to the A, A-1 and B classifications effective in this country. Cars not used for business purposes, including those of clergymen and farmers, were reduced 10 per cent. A 20 per cent reduction is being made on such cars if mileage during the past year did not exceed 7,500 and if the mileage is estimated not to exceed this distance in the coming year, provided there are no more than two operators of the automobile and they are at least 25 years old. The 20 per cent reduction is particularly significant at this time because under the rationing program the average driver will probably not be able to drive more than 5,400 miles a year with his gasoline allowance.

Cars not coming under the two foregoing classifications take manual rates except such risks as are required to pay a surcharge under the financial responsibility laws.

Fire, Theft and Collision Rate Revision

New automobile manuals embracing fire, theft, comprehensive and collision coverages were made effective on May 4, 1942 in all except a few states.

The changes in private passenger automobile rates were to a large extent confined to the collision coverages, nominal increases being made in a number of rating territories. The comprehensive rates in several of the southern states were slightly increased.

For commercial automobiles the rates were changed in most rating territories in one or more coverages and classes. The fire rates were slightly decreased in the eastern region and increased in one middle western state. The collision rates were decreased for local hauling risks in a number of rating territories but were increased in a majority of rating territories for intermediate and long distance hauling risks.

The "light commercial" classification was eliminated, all commercial automobiles now being classified according to radius of operation.

In the Pacific coast region the Comprehensive coverage was extended for the first time to commercial automobiles and to certain types of public automobiles and miscellaneous type vehicles.

Boiler and Machinery

Rate Revision

A complete revision of the Boiler and Machinery Manual was made effective on May 18, 1942. The revision involved changes in the method of rating Boiler risks and a plan for premium gradation as well as a change in rate level.

A feature of the revision was the elimination of basic and location charges for Boiler insurance and the substitution in their stead of an insurance charge table. Since the insurance charges do not entirely compensate for the premium lost through the abandonment of the basic and location charges, the object charges were increased accordingly. With this revision the method of rating boilers is brought into conformity with that used for machinery.

Effective at the same time as the rate revision a plan for the gradation of premium by size of risk was inaugurated. The first $500 of premium on a risk is written at standard rates, the next $2,500 is discounted 10% and all of that portion of the premium in excess of $3,000 is discounted 30%. The discount is based on a reduction in production cost allowance and on a gradation of administration and supervision expenses. It is also based partly on a reduction of the tax, profit and contingency items since these are calculated on the discounted premium. Production cost allowance is payable at the standard rate of 25% on the first $2,750 of discounted premium (25% of the first $500 of premium and 25% of the next $2,500 of premium discounted 10%) and at a rate of 15% on all discounted premium over $2,750.

The net effect of the rate revision on Boiler and Machinery premiums is estimated to be an increase of 6%.

Miscellaneous Liability

Medical Payments

A program of medical payments coverage in connection with residence liability risks was made effective on April 14, 1942.

The new coverage rounds out the program of liability insurance with regard to this type of risk, the coverages which previously had been available being bodily injury, property damage and employers' liability including immediate medical aid, and extended medical aid coverage for domestic employees. Now the program is extended to cover the provision by the householder of medical, nursing, or hospital care, or reasonable funeral expenses when death results, for a person who sustains bodily injury, sickness or disease caused by accident while on the premises; this coverage is in addition to the immediate medical aid already provided under liability policies. The coverage also extends to persons injured on the adjoining ways if the injury is caused by an occurrence on the premises. The coverage does not apply to any person while on the premises because of a business conducted thereon, to any person receiving workmen's compensation benefits because of such injury, to any employee of the insured while engaged in the employment of the insured, to the named insured or any person regularly residing on the premises, or to any person while on the premises except with permission, express or implied, of some person having authority to grant permission.

The medical payments coverage is available only in connection with Owners', Landlords' and Tenants' liability insurance on single apartments, private residences, private estates, two family dwellings and the residence portion of Personal liability insurance. It is not available for farms.

The insurance may be written with a limit of either $250 or $500 per person.

New Classifications

Because of unusual conditions arising out of the war five new classifications were added to the Owners', Landlords' and Tenants' Liability Manual on July 8, 1942. Three of these new bicycle classifications erected to meet the demand for insurance on this type of vehicle because of its increased use due to restrictions on automobile transportation. The other two deal with volunteer war workers and army and navy post exchanges.

Of the three bicycle classifications one is a family policy with the rates applying per family. Coverage is provided for the ownership, maintenance or use of bicycles by the insured for both pleasure and business. The term "insured" means the named insured, the named insured's spouse, and their children under the age of 21 years, all permanently residing in the same household. It specifically excludes coverage for bicycles rented to others and for maintenance or use of bicycles by employees of the insured, other than domestic employees. It does not cover such domestic employees against their personal liability, but indemnifies the insured against his or her liability resulting from the acts of such employees within the policy terms.

Another bicycle classification is a policy written for an individual, with the rates applying per person. Coverage is similar to the family policy except that other members of the family are not covered.

A third classification includes commercial use, the rates applying per bicycle. The term "insured" in this case includes not only members of the named insured's family but his employees or the family's employees while in the course of their employment and any person or organization using the bicycle with the permission of the named insured or any member of his family. The classification specifically excludes coverage for bicycles rented to others, and does not apply to news agents, newspaper publishers, telegraph companies or public messenger or parcel delivery service risks, for all of which other methods of rating apply.

The newly erected classification for the personal liability of volunteer war workers provides coverage solely for the personal acts and activities of the insured as a volunteer worker in connection with civilian defense or similar volunteer war work. It includes bodily injury, whether or not caused by accident, due to rendering, or the failure to render, first aid services in connection with the insured's war work activities. The classification specifically excludes bodily injury claims "due to the rendering of any professional services or the omission thereof," coverage for such liability being provided by professional liability policies. Insurance is available on a group basis at special rates if completely arranged for and purchased by a municipality, defense council or similar controlling organization, providing however, that all of the workers of the unit are covered.

The newly erected classification for army or navy post exchanges provides for both premises coverage and product liability at a single rate which is based on receipts. Ordinarily there are separate rates for these two hazards based on area exposure and sales exposure separately.

Personal Notes

Burritt A. Hunt recently retired as Assistant Secretary of the Aetna Casualty and Surety Company and is living in Manchester, Connecticut.

Morris Koloditzky is in the United States Army with the Eighth Armored Division stationed at Fort Knox, Kentucky.

Dudley M. Pruitt resigned as Statistician of the Eastern Department of the Fireman's Fund Indemnity Company to become Actuary of the General Accident, Fire & Life Assurance Corporation at Philadelphia, Pa.

Bruce Batho is now Actuary of the Country Life Insurance Company of Chicago, Illinois.

Norman Rosenberg is now connected with the Public Service Mutual Casualty Insurance Company in New York.

William H. Mayer, Jr. is in the United States Army attached to the 252nd Coast Artillery, at Fort Screven, Georgia.

LEGAL NOTES

BY

SAUL B. ACKERMAN

(OF THE NEW YORK BAR)

ACCIDENT — TRAVEL

[Higgins *vs.* Life & Casualty Ins. Co. of Tennessee, 17 S. E. (2d) 5.]

An action was brought to recover a death benefit under an Industrial Travel and Pedestrian Policy in which the plaintiff was the beneficiary. The policy provided coverage if the accident was caused by collision of or by any accident to any private driven automobile inside of which the insured was driving provided that there shall be some external or visible injury to or on the vehicle and provided that the collision or accident must occur on a public highway.

The insured while a passenger in an automobile, fell out of the car, receiving injuries from which he died the next day. The facts were that as the driver was going around a curve, another automobile attempted to pass and crowded the insured's car off the road. It skidded, struck a ditch and the insured was thrown against and out of the automobile. He was caught under the car and dragged.

Prior to the accident the car was in good condition without dents or marks. After the accident, the door was damaged and its glass broken, the fender was dented and the running board was damaged.

What were the rights of the beneficiary?

The court held no one saw the fenders dented or the glass broken or the other damage done to the car. However that such external and visible injuries were not in existence just prior to the accident and were discovered shortly thereafter permits and perhaps commands the inference that the damage resulted from the accident. Therefore the requirements of the policy were met and the beneficiary was entitled to collect.

AUTOMOBILE — EMPLOYEE EXCLUSION

[Green *vs.* Travelers Ins. Co., 36 N. E. (2d) 620.]

One May was riding in the plaintiff's truck and was injured when a side board fell out as the truck operated by the plaintiff was rounding a curve. At the time May was being transported with others to pick currants at the plaintiff's farm.

The plaintiff paid a judgment obtained against him by May. He then sued to recover that amount from the defendant insurance company. The company had declined to defend the action against Green because the carrier claimed May was not covered since he was an "employee." The plaintiff relied on the provision of the policy by which the carrier undertook to pay all obligations imposed upon the insured because of liability for bodily injury, caused by the accident through the use of the automobile. The defendant relied on the clause which excluded liability for injuries to any employees of the insured while engaged in the business of the insured.

What were the rights of the insured?

The court held that the transportation of May to and from Green's farm was not a part of the contract of hiring and May was not at the time engaged in the insured's business. The transportation was a gratuity and was not a part of May's contract of employment. The day's work commenced and ended at the farm and the plaintiff gave the pickers a free ride.

The plaintiff was therefore entitled to recovery under the terms of the policy.

Automobile — Statutory Policy

[Green Bus Lines, Inc. *vs.* Ocean Accident and Guaranty Corporation, Ltd., 39 N. E. (2d) 251.]

The plaintiff sued to recover money paid with the defendant's consent to settle an action brought against the bus company by a passenger who had been assaulted by a fellow passenger. Allegedly the driver of the bus had knowledge of a prolonged disturbance of unruly passengers but took no steps to guard the safety of the injured passenger.

The defendant's policy covered the plaintiff for liability for personal injuries resulting from the use of its buses. The policy was issued in compliance with the New York Vehicle and Traffic Law.

What were the rights of the insured?

The court held that reading the Statute as a whole, it is reasonable to state that the furnishing of the policy was required in a large measure to safeguard the person and property of passengers from injury or damage caused by the negligence of a public motor vehicle carrier.

Having written the policy the defendant was liable for such injury as that in the case at bar since the liability of a bus company to its passengers for injuries sustained from assault by fellow passengers after due notice is a liability imposed by law and is one of the incidents of ownership and operation of a motor vehicle for hire in the State.

Banker's Blanket Bond — Forgery

[Eliot Sav. Bank *vs.* Aetna Casualty and Surety Co., 38 N. E. (2d) 59.]

The defendant's bond covered the plaintiff for forgery. The bond was issued originally on May 11, 1927 and renewed May 11, 1930. A forger succeeded in obtaining a loan from the plaintiff bank on Nov. 15, 1923, forged the name of a registered owner of a certificate of shares of stock, gave that stock as collateral and forged that name on a note, and subsequently on renewal notes. A note dated Jan. 6, 1932 was not paid at maturity. On April 21, 1932 the bank sold the stock and applied the proceeds on the loan. Later the true owner of the stock forced the corporation that issued the stock to replace the stock and to pay dividends diverted. Then the issuing corporation sued the bank upon its guarantee of the forger's signature on the transfer of the stock and recovered judgment for its losses including expenses. The defendant was notified of the institution of that suit but refused to defend.

The question involved in the case was whether the plaintiff sustained its loss prior to the commencement date of the bond or whether the loss occurred when the plaintiff sold the collateral. The bank contended it did not suffer a loss when the original forged note was accepted but received a substitute of assets at that time.

What were the rights of the bank?

The court disagreed with the plaintiff and held that its loss occurred when it parted with its money for the original forged notes and collateral, and not thereafter when it discovered the facts of the forgery.

Consequently the court held that plaintiff had sustained its loss at a time when the bond coverage did not exist.

Burglary — Forcible Entry

[Leeds, Inc. *vs.* Aetna Casualty & Surety Co., 40 F. Supp. 966.]

The plaintiff occupied a store, basement and a subbasement for the sale of clothing. Part of the basement was partitioned off for office space. There was a door in the partitioned section which was locked at the close of business. During one night a theft occurred. The plaintiff was able to show that the lock on the doorway of the interior office partition in the basement had been broken by the use of force. The insured contended that the visible marks of violence in the breaking of the lock on the doorway brought the loss within the terms of the mercantile open stock burglary policy.

What were the rights of the carrier?

The court held that the policy only covered the insured if entry was made from the exterior of the premises. Since there was no forcible entry from the exterior of the premises, the inference must be that the persons committing the theft must have entered the premises without force or violence and concealed themselves in some portion of the basement when the premises were open for business.

The insurance company was therefore not liable.

Contractors' Liability — Subcontractor

[Eifert *vs.* United States Fidelity and Guaranty Co., 31 N. Y. S. (2d) 148.]

The defendant issued a policy to Burkard Builders, Inc. who were engaged in construction work. The deceased was employed by a subcontractor and met his death while using an unsafe scaffold erected by a subcontractor. Some of the lumber for the scaffold was furnished by Burkard Builders, Inc. In addition to the policy obtained covering their own work, Burkard Builders, Inc. also obtained a policy against negligence of subcontractors. The plaintiff sued Burkard Builders, Inc., and the subcontractor and obtained a judgment for $12,500. The defendant paid $5,000 the policy limit under the policy covering negligence of subcontractor. The plaintiff sought recovery for the $5,000 policy limit covering the direct liability of Burkard Builders, Inc.

The carrier contended that the coverage under one policy was intended to exclude coverage under the second policy.

What were the rights of the carrier?

The court held that since Burkard Builders, Inc. furnished the unsafe scaffold, the liability contemplated by the direct policy came into existence.

The court did not accept the carrier's theory that liability was limited to one policy. Burkard Builders, Inc. were directly liable because it furnished the unsafe scaffold. Burkard Builders, Inc. was also indirectly liable because the scaffold was built by a subcontractor and the defendant agreed to indemnify Burkard Builders, Inc. against the negligence of subcontractors.

Compensation — Incidental Work

[Miller *vs.* Candle, 17 S. E. (2d) 487.]

The defendant insurance company issued a compensation policy to a truckman. Some of the activities of the truckman included operation of a steam shovel, renting rights of stream by the month for sand and gravel, and hauling stone and cement. Subsequent to the issuance of the policy the employer commenced to operate a quarry. The policy covered "Truckmen . . . including blacksmiths." One of the insured's employees was a blacksmith. He worked on the repair of truck equipment and also in connection with the quarrying operations. While engaged in work for the quarry he was killed. The defendant insurance company denied liability contending that the policy did not cover quarry operations.

The policy covered work places described in the policy or elsewhere in connection with such places.

What were the rights of the insurance company?

The court refused to accept the company's contention that the quarrying operations were not covered by the policy. The court agreed with the findings of the Industrial Commission that the operations of a quarry were incidental and appurtenant to the employer's business. Therefore the company was liable under the policy.

Fidelity — Employee Covered

[Reliable Co. *vs.* Union Safe Deposit & Trust Co., 21 A. (2d) 834.]

On Jan. 30, 1939 when the defendant issued to plaintiff its fidelity bond, one Brennan was in the plaintiff's employ. The bond covered for fraud, dishonesty, theft, embezzlement of its employees. On Sept. 8, 1939 the plaintiff discovered that while acting as manager, Brennan was guilty of larceny and embezzlement of money from plaintiff to extent of $1,050 prior to the issuance of the bond. He admitted his theft, arranged to reimburse by giving his note payable in weekly installments. He paid until Dec., 1939, when the plaintiff discovered he had also embezzled other sums between Jan. and Dec., 1939, of which $73.95 was embezzled prior to Sept. 8, 1939, the date of plaintiff's discovery of original loss. The defendant denied liability for losses sustained after Sept. 8, 1939. The bond stated that it shall terminate "upon discovery of loss through that employee." The defendant contended that thereby the bond terminated when the plaintiff discovered on Sept. 8, 1939, Brennan's theft.

What were the rights of the plaintiff?

The court held that the discovery of a loss sustained by an embezzlement by the employee before the effective date of the bond did not terminate the insurance. The bond did not expressly provide that discovery of a loss following the bond's execution where the loss occurred prior thereto shall terminate the insurance. Without such termination the bond remained in full force and effect as to later losses by larcenies and embezzlements, even though the obligee discovered a prior loss and failed to report such a loss.

The plaintiff was therefore entitled to recover losses since Sept. 8, 1939.

Health — Tumor

[Stewart *vs.* Hoosier Casualty Co., 37 N. E. (2d) 438.]

The plaintiff was insured by the defendant under a health and accident policy. She sued for disability benefit following an operation for a fibroid tumor of the uterus.

The policy contained a clause excepting disability due to "any illness or diseased organs not common to both sexes."

What were the rights of the insured?

The court held that the words "to any illness" were intended to, and must be read with the words "not common to both sexes," to convey the intended meaning that indemnity under this clause will not be paid for disability due directly or indirectly "to any illness not common to both sexes." The plaintiff's disability resulted from an illness caused by a fibroid tumor which is a disease or illness, admittedly common to both sexes. Therefore, defendant was not exempt from payment of indemnity.

Lessees' Liability — Contractual

[St. Louis Police Relief Ass'n. *vs.* Aetna Life Ins. Co., 154 S. W. (2d) 782.]

The plaintiff had a written lease for the use of a coliseum building for the purpose of holding a police benefit circus. Under the lease, the lessee was to indemnify the lessor for the liability for personal injuries on the premises. The defendant's policy was issued to cover the plaintiff.

One Mary Cordes, while attending the circus, fell on a stairway on a soda bottle cap and sued the plaintiff and the owner of the coliseum for damages for her injuries. The defendant conducted the defense for the plaintiff in that action and settled. The owner's insurance company also settled. Then the latter insurance company sued the plaintiff upon the indemnifying clause in the lease to recover the amount it had been compelled to pay, and was successful. The defendant had refused to defend that suit for the plaintiff, who paid that judgment. The plaintiff then sought to recover under its policy.

The theory of the defense was that the present suit was not a claim based on direct liability of the plaintiff to Mary Cordes for injuries, but upon the liability of the owner to her, and therefore was not covered by the defendant's policy to the plaintiff.

The plaintiff's policy contained an exception covering claims "arising by reason of . . . liability of others assumed by the assured. . . ."

What were the rights of the lessee?

The court held that the policy did not include the liability for which the plaintiff reimbursed the coliseum company, the owner. The liability which the insured assumed was the liability for personal injuries alleged to have resulted from the lessor's failure with respect to the stairway.

In other words, Mary Cordes had recovered on a claim of joint negligence against lessee and lessor. This policy covering the lessee did not include coverage for the lessor's negligence, and consequently the plaintiff could not recover the amount it was compelled to pay to the lessor.

Owners', Landlords' and Tenants' Liability — Gas

[Cohen *vs.* National Casualty Co., 29 N. Y. S. 999.]

The plaintiff had secured a judgment against the owner of property in which the plaintiff was a tenant. The defendant who insured the landlord had disclaimed responsibility. The plaintiff sued the defendant to recover the judgment.

The following were the facts. As a result of heating the plaintiff's apartment, coal gas was given off which entered the plaintiff's apartment. As a result of this odor, the plaintiff was compelled to open the windows. A draft followed resulting in the plaintiff catching a cold and a "wry neck."

What were the rights of the tenant?

The court held that the escape of coal gas into an apartment is something catastrophic or extraordinary, a mishap or an accident. The opening of the window and the subsequent injury was a causation of an accident which may be reasonably inferred.

The negligence of the landlord was the proximate cause of the plaintiff's injuries. The injuries suffered by the plaintiff can definitely be assignable to a determined or a single accident that is escape of coal gas which is identifiable in time or space. The injuries were therefore covered by the policy.

Public Liability—Exclusion

[Protane Corporation *vs.* Travelers Indemnity Co., 22 A. (2d) 674.]

The plaintiff held a public liability policy issued by the defendant.

The plaintiff manufactures systems for domestic use of a certain gas which it sells to independent contractors who receive exclusive sales rights. These dealers market and service the systems, including replacing empty gas tanks with full ones owned by the plaintiff. One of these dealers replaced a tank for a Martha Rogers and during the process her property was damaged by a fire caused by the inexperience of the dealer. She sued the plaintiff and the suit was settled for $8,500, by the plaintiff and the defendant each contributing $4,250. The plaintiff sought to recover a portion paid by the plaintiff from the defendant under the policy. The company contended that it was not liable since the policy did not cover accidents during installation of the insured's products.

What were the rights of the insured?

The court held that the defendant was liable on the basis that the policy covered the indemnity for plaintiff's negligence in training the dealer in the installation of the dangerous equipment. The clause in the policy excluding accidents during installation did not apply because the accident did not occur through the dealer's personal negligence in replacing the tank. The dealer had not been given adequate instructions.

The plaintiff should have given the dealer adequate instructions. Failure to give such instructions meant that the plaintiff had breached a duty it owed to the consumer. Consequently the negligence of the plaintiff was the proximate cause of the injury and the loss was covered by the policy.

Robbery — Outside Coverage

[Axt *vs.* London & Lancashire Indemnity Co., 42 F. Supp. 1013.]

The defendant issued to the plaintiff a robbery policy covering $1,000 for robbery within the premises and $10,000 for robbery from a custodian outside of premises. The plaintiff occupied an office for his business on the second floor of a building. He had a private office and a reception room. Adjoining his private office there was another office, entered through the same reception room, which was occupied by a third party not connected with the plaintiff.

One morning three robbers entered the reception room with drawn revolvers, pointed a gun at the plaintiff, went into his private office, took jewelery and merchandise from the safe and diamonds which he had before him for weighing and inspection. They taped the plaintiff's mouth and hands and forced him back into the reception room and then into the third party's office where they took from his inside coat pocket a wallet containing diamonds. Then they brought him back into the reception room and then into his own private office. The company contended that there was no liability for outside coverage.

What were the rights of the insured?

The court held that there can be no question but that there was a felonious and forcible taking of property by violence. The plaintiff was the custodian and he was put in fear of violence. The actions of the holdup men are encompassed within the definitions of what constitutes robbery. The diamonds and jewelry taken were clearly covered by the policy as goods commonly dealt with by the plaintiff.

There could be no real dispute about recovery for the merchandise taken from the safe within the private office. However the defendant argued that since the robbery commenced there, the later acts or robbery in the adjoining room was part of the same robbery and that therefore it was all on the insured's premises. The court disagreed with that contention and held that the robbery of the diamonds, which took place in the adjoining office, occurred outside of the insured's premises and that therefore the plaintiff was entitled to recover $10,000 under the outside coverage section of the policy.

Safe Depository Liability — Depositor's Judgment

[Abbott *vs.* Aetna Casualty & Surety Co., 42 F. Supp. 793.]

The plaintiff had placed 50—$1000 gold certificates of U. S. in a rented safe deposit vault of a bank in Maryland. Thereafter these certificates disappeared without the plaintiff's authorization or knowledge. Prior to the deposit, the defendant had issued to the bank a safe depository policy. The plaintiff sued the bank for the value of the gold certificates as well as for

5—$100 Treasury notes which had also disappeared from his vault box. He recovered a judgment but was unable to collect it from the bank. He then sought to recover the amount of his judgment from the defendant on the safe depository policy.

What were the rights of the depositor?

The court held that the defendant was estopped by the judgment obtained by the plaintiff against the bank from denying liability to the plaintiff under its policy. Under the policy the defendant was obliged to "pay on behalf of the insured all sums which the insured shall become legally obligated to pay by reason of . . . loss of money, securities, . . . and all other property in the safe deposit boxes in the vault. . . ."

An indemnitor is, as to the indemnitee, in the absence of fraud or collusion, concluded by a judgment against the latter, where the indemnitor had notice of the litigation and an adequate opportunity to defend the action even though the indemnitor did not in fact do so.

In the present case the policy provided that the insured must notify the carrier of any claim and cooperate with the carrier in any defense. The bank had met the various requirements of the policy. Therefore the judgment became conclusive upon the insurance company. The only possible considerations which will change the rule are (1) fraud in procuring the judgment of such character to render the judgment impeachable; (2) lack of insurable interest by the plaintiff in the subject matter of the judgment.

OBITUARY

EDWARD JOHNSON BOND

1888 - 1941

Edward J. Bond died in Baltimore, Maryland, on November 12, 1941. He was President of the Maryland Casualty Company, and was at the home office of the company when he became ill during the afternoon of the day of his death. Without having recovered sufficiently to be moved from the infirmary of the company, he died there in the early evening.

Mr. Bond was born October 18, 1888, in Petersburg, Virginia. He was educated in the Boys' Latin School of Baltimore and at Virginia Military Institute at Lexington, Virginia. From the latter institution where his major subject was engineering, he graduated in 1908 with the degree, Bachelor of Science.

In November of the same year, when only twenty years of age, Edward J. Bond entered the insurance business in the auditing division of the Maryland. Within a year he was transferred to the Liability Department. At that time F. Highlands Burns was a vice-president of the Maryland, in general charge of liability underwriting. Thus early in his career, Mr. Bond began his association with Mr. Burns which continued until the death of the latter in 1935. When John T. Stone, President and founder of the company, died on May 9, 1920, and was succeeded by Mr. Burns as President, Mr. Bond, in turn, succeeded Mr. Burns as First Vice-President and Director of Casualty Underwriting. During this period, Mr. Bond was a strong right-hand aid to the president of the company on underwriting matters. He continued in this office until 1931 when he was designated Senior Vice-President, which position he held until he became President of the company in January, 1937. His election to the presidency was a popular choice among his colleagues in the insurance fraternity at large as well as among his associates in the company itself.

Except for an interruption during the period of Mr. Bond's service in the Army during the World War, he spent his entire active adult life with the Maryland. For several months during 1918 he attended the Third Officers' Training School from which he was graduated as second lieutenant. In a short time he was advanced to the rank of first lieutenant, and was serving as a regimental intelligence officer in the 810th Pioneer Infantry when the war ended.

On November 2, 1933, in recognition of his twenty-five years of service with the Maryland, Mr. Bond's associates of the company gave a dinner in his honor at the Lord Baltimore Hotel. On this occasion, F. Highlands Burns, then President of the company, paid high tribute to the support Mr. Bond had always given him, naming as the chief characteristics of the guest of honor, honesty, sincerity, efficiency, courage and loyalty.

The record of Mr. Bond's advancement in the Maryland in the course of his career of thirty-three years, in itself, gives proof of the energy, ability and loyalty with which he served that company. In fact, his conscientious devotion to the profession of insurance, whether in work for his own company or for the business as a whole, prompted his associates to remark that he made a religion of his work.

Important as was his place in the development of his own company, Mr. Bond, almost from the beginning of his insurance career devoted much time, thought and energy to work with representatives of other companies in cooperative organizations. He had a keen appreciation of the necessity of joint efforts to accomplish the common objectives of groups of carriers and he also had the qualities of mind and the personality which fitted him for effective work with his colleagues of other carriers. From the early years of the voluntary rating organization now known as the National Bureau of Casualty and Surety Underwriters, Mr. Bond represented the Maryland on numerous important committees, including nineteen years of service for his company as a member of the Executive Committee of the Bureau. He was very active in all Bureau affairs, devoting his time and energies to the welfare of the organization and its members in spite of the heavy duties and responsibilities of his position in the Maryland.

For many years, Mr. Bond represented his company on the Executive Committee of the Association of Casualty and Surety Executives and in 1941 was elected Vice-President of the Association. He was always very active in this organization, giving generously of his time to promote the best interests of the entire business. Throughout his career, Mr. Bond was consistent in holding a broad view of the proper functions of the institution of insurance. Many insurance men think of their business only as part of the distributive system—the collection of premiums from those who are exposed to a hazard and the distribution of the money so collected to those who have suffered the misfortune. This was not the point of view of Mr. Bond. He believed that insurance companies could use their facilities with great advantage to themselves, to their policyholders and to society in general in preventing these misfortunes from happening. Mr. Bond was a firm believer in conservation and was consistently and from the beginning a strong supporter of the conservational work of the stock companies. He was, at his death, a member of the Advisory Committee of the National Conservation Bureau and a member of the Advisory Committee of the Center for Safety Education of New York University, and for many years before that he had been continuously a member of the committee that guided the earlier work of the National Bureau of Casualty and Surety Underwriters in the conservation field.

Mr. Bond was active in the acquisition cost conferences throughout the history of these agreements. He was one of the pioneers in setting up the structure of the conferences and formulating the original rules of operation. Later on he worked on problems as they came up in the operation of the conferences and continued his constructive work reshaping the regulations and policies of the conferences as time went on.

In the work of formulating and establishing uniform rate-making methods and standard underwriting practices in workmen's compensation insurance, Mr. Bond was one of the pioneers. His interest in this branch of insurance activity was, however, not confined to the pioneering stages. Throughout his career, he continued actively to participate in compensation rate-making, always taking an important part in the shaping of general policies.

An account of Mr. Bond's activities in workmen's compensation rate-making would, in fact, be a remarkably complete history of cooperation by the companies in the improvement and standardization of methods, the centralization of control and all phases of the cooperative system which now exists.

As a representative of the Maryland, which was one of the companies participating for the Workmen's Compensation Service Bureau, Mr. Bond took part in the organization and activities of the 1915 Joint Conference on Workmen's Compensation Rates. This Conference comprised representatives of the Massachusetts Rating and Inspection Bureau, the Compensation Inspection Rating Board of New York, the Workmen's Compensation Service Bureau, the Insurance Departments of New York, Massachusetts, California, Maryland, and Pennsylvania and the Industrial Commission of Wisconsin.

Mr. Bond was present at the initial organization meeting of the Conference held on September 28, 1915, at the Hotel Manhattan in New York; he continued work thereafter as Chairman of the Committee on Rules. The most important achievement of the Conference was the consolidation and standardization of methods. In order to make this benefit enduring, a standing committee on manual rules, classifications and rates was established. Through this Committee, all proposed changes in rules, classifications and rates were cleared, and a high degree of uniformity was maintained in the Manual for the various states. As one of the seven members of this "standing committee," the Maryland was represented by Mr. Bond. In 1917, the membership of this committee, officially designated the Standard Committee of the Joint Conference on Workmen's Compensation Insurance Rates, was increased by the addition of five companies and became known as the

"Augmented Standing Committee" or the 1917 Conference on Workmen's Compensation Insurance Rates. Continuing to represent the Maryland, Mr. Bond participated actively in the work of the Conference. Briefly this work consisted of conducting the 1917 revision of rates and, in this process, amplifying the rate-making method then existing and placing it on a sounder actuarial basis.

At the close of the revision, the Augmented Standing Committee was superseded by the National Reference Committee on Workmen's Compensation Insurance which continued the work of maintaining uniformity of manual procedure. There also existed in 1918 a committee known as the National Reference Committee on Schedule Rating. Those two committees coordinated their work and continued to function until December, 1918, when they were brought together under one organization known as the National Council on Workmen's Compensation Insurance.

The first general rate revision undertaken by the National Council was known as the 1920 Revision of Workmen's Compensation Insurance Rates. The work accomplished in this revision represented a distinct advance in compensation insurance rate-making. Representing the Maryland in the work of committees which supervised the revision, Mr. Bond took a prominent part in the entire proceedings. He was, at the beginning of the Council and during the following two decades, very influential in determining all of its major policies.

With the establishment of the National Council, the National Bureau no longer functioned as the central body for compensation rate-making. However, the Bureau continued its research and study on compensation problems and Mr. Bond took an active part in directing these studies and making recommendations designed to promote the interests of stock companies. He was a member of the Special Executive Investigating Committee on Workmen's Compensation Insurance, such committee having been authorized at the 1926 Annual Meeting of the National Bureau to study the compensation rate situation. The investigations and recommendations of this Committee resulted in the introduction first in New York and later in most of the other states, of a fundamentally revised rating program into which the element of variation by size of risk was injected.

With the appointment in 1930 of a sub-committee of the National Bureau Executive Committee, to conduct studies and submit recommendations on Workmen's Compensation rate-making, executive committee work on this subject took a permanent place in the activities of the Bureau. Mr. Bond had served on this Committee continuously until the time of his death.

Mr. Bond was elected a Fellow of this Society in 1921. As his work was largely in the field of administration, he did not take an active part in the affairs of the Society. However, his sympathy with the purposes and activities of the organization followed naturally from his never-failing readiness to share in cooperative efforts directed toward the scientific solution of casualty insurance problems.

OBITUARY

CHARLES H. BURHANS

1903 - 1942

Charles H. Burhans, a Fellow of this Society, died January 15, 1942, after a lingering illness.

Mr. Burhans was born in Owosso, Michigan, on the fifteenth day of July, 1903. He lived there throughout his youth, attending the local public schools. About the time of graduation from high school he conceived the idea of entering the service of his country, and his character and scholastic record were such that he received an appointment to the United States Naval Academy at Annapolis. The malady which was to plague Mr. Burhans during his lifetime manifested itself early causing him to accept a position with the management of some lumbering interests in his native state. This proved to be too rigorous a life, so, in January, 1928, he entered the service of the Standard Accident Insurance Company.

Becoming interested in Casualty Actuarial work, he studied for and passed the examinations of this Society and was admitted as a fellow on November 18, 1932. Mr. Burhans remained with the Standard until November 29, 1940, when he was granted leave of absence because of severe illness which proved to be fatal.

OBITUARY

MILES MENANDER DAWSON

1863 - 1942

Though poor health had forced curtailment of his activities in recent years, few members of the actuarial profession have rendered more varied and distinguished service, public and private, or led more active lives than Miles

M. Dawson, one of our charter members, who passed away at Orland, Florida, on March 27, 1942.

Born at Viroqua, Wisconsin, May 13, 1863, he entered the actuarial profession in New York in the 1890's, coming with a background of local agency work in general insurance and service as a soliciting agent in life insurance. He was one of the few and first Americans to become a Fellow of the Institute of Actuaries (London) in 1904. In the same year he passed the examinations and was admitted a Fellow of the Actuarial Society of America. He was admitted to the New York Bar in 1907.

He probably first became widely known as actuary of the Armstrong Committee in 1905. The reform legislation which followed that committee's investigation, much of which was his suggestion, aroused strong antagonism but proved him a man of vision. In 1908 with Lee K. Frankel he investigated workmen's compensation in Europe for the Russell Sage Foundation. He assisted in drafting the New York Workmen's Compensation Law and in setting up the State Fund. He was also consultant when the Federal War Risk Bureau was set up during the first world war. We leave the memorial of his legal work to be recorded elsewhere.

Growing out of his consulting practice in life insurance and his work with the Armstrong Committee he published "Various Derived Tables, American Experience 3 & 3½%" and "Comparative Reserve Tables," both volumes representing great labor in his office and of great value in practical life actuarial work.

He obtained from correspondents in Europe the data for the compilation of the Danish Survivorship Annuity Tables and the Dutch Remarriage Tables which proved very valuable in the pioneer period in our work. In addition to these publications he wrote other less well-known books on life insurance and actuarial science, tutored some of our charter members for their examinations in the Actuarial Society, and presented numerous papers published in the *Transactions* of the Actuarial Society and in our *Proceedings* as well as the *Proceedings* of the International Congresses of Actuaries.

Those who knew him at the time our Society was founded and in the decade following, knew him as a genial fellow, who knew some of the good eating places about lower New York, and was always interested in the progress of younger men. He was of superabundant energy which enabled him, despite his load of professional work, of which only the highlights have been related, to take an active part in civic affairs and attain high Masonic standing.

He was also, like his ideal, Elizur Wright, deeply interested in poetry and philosophy, especially ethics. He published a volume on each, "The Ethics of Confucius" and "The Ethics of Socrates."

OBITUARY

ROBERT COWEN LEES HAMILTON

1864 - 1941

Robert Cowen Lees Hamilton died on November 15, 1941, at the Hartford Hospital, Hartford, Connecticut. He was 77 years old.

Mr. Hamilton was retired as Comptroller of the Hartford Accident and Indemnity Company on May 1, 1938. His farm in New Hampshire was one of his greatest interests during the years that followed, except when he was confined following the fracture of his leg, which occurred about a year before his death.

Mr. Hamilton was born and spent the earlier part of his life in Scotland. He attended Herriot College in Edinburgh. He later entered the banking field, becoming associated with a branch of the British Linen Company Bank and remaining with that firm four years. He also served ten years in the territorial army of Scotland before coming to the United States.

In addition to being a Fellow of this Society, he was also a member of the Actuarial Society of America.

He was engaged in the insurance business for many years. Prior to joining the Hartford Accident and Indemnity Company on May 1, 1914, he had organized the Royal Indemnity Company as an indemnity subsidiary of the Royal Fire Assurance Company of Liverpool, England. Mr. Hamilton became Comptroller of the Hartford Accident and Indemnity Company in 1916, which position he held during the rapid growth of that company until his retirement.

His genial and understanding personality endeared him to his friends and associates and was reflected in the character of the company with which he was so long associated. That influence will long endure.

OBITUARY

ROBERT HENDERSON

1871 - 1942

Through the death of Robert Henderson on February 16, 1942, the actuarial profession lost one of its distinguished members who had contributed greatly to the scientific achievements of the profession. Born in Russell, Ontario, on May 24, 1871, he gave early indication of remarkable mathematical capacity, matriculating at the age of sixteen at the University of Toronto with first class honors and winning the scholarship in mathematics. He graduated in 1891 at the head of his class in Honour Mathematics and was appointed Fellow in Mathematics for the following year.

In 1892 Mr. Henderson left academic life and entered the Government Insurance Department at Ottawa where he served for about five years. During this time he took the examinations of the Institute of Actuaries of Great Britain, becoming a Fellow in 1896.

Mr. Henderson left Canada in 1897 to enter the employ of the Equitable Life Assurance Society of the United States. This brought him into close contact with many members of the Actuarial Society of America, and he was enrolled as an Associate of that Society in 1900, completing the Fellowship examinations in 1902. As early as 1905 he was elected to its Council. From 1912 to 1915 he served as Secretary and, after being elected Vice-President for two periods of two years each, he became President in 1922.

While Mr. Henderson's major work was in the field of the life insurance actuary, it is testimony to the breadth of his interest in all actuarial theory that he became a Fellow of the Casualty Actuarial Society in 1919. His contributions to the *Proceedings* were not numerous but his development within his company of experience rating methods for surplus distribution under group insurance coverages indicated his complete grasp of a subject commonly dealt with by this Society.

All of Mr. Henderson's business life, after leaving Canada, was spent in the service of the Equitable Life Assurance Society. In 1903 he was appointed Assistant Actuary and in 1911 was made Actuary. In addition to this latter title the position of Second Vice-President was accorded him in 1920 and in 1929 he was appointed Vice-President. He retired in 1936, after thirty-nine years of service with the Equitable, and thereafter lived in Crown Point, New York, where he died.

In actuarial circles Mr. Henderson's mathematical power was generally recognized both as a mark of personal distinction and as an influence which contributed greatly to the scientific productiveness and standing of the profession on this continent. The high quality and value of his many papers found in the *Transactions* of the Actuarial Society, his publications within the field of mortality statistics and graduation, and his active part in the work of compiling inter-company experience, give him an outstanding place in the history of our science.

He was generous also in contributing his time and abilities to outside matters calling for actuarial assistance. He served on the consulting board established in 1914 by the Commission on Pensions for the Teachers' Retirement Fund of the City of New York, and in 1915 undertook the actuarial work connected with the establishment of the Church Pension Fund of the Episcopal Church. He also served on the Committee on the Census appointed in 1914 by the Actuarial Society to advise the Director of the Census, and later his individual work in connection with the mathematical formulæ and methods used in the construction of the United States Abridged Life Tables (1919-1920) was publicly acknowledged by the Director.

In 1935 Mr. Henderson's contributions to the scientific world were recognized by his Alma Mater, the University of Toronto, when it conferred upon him the honorary degree of Doctor of Science. His broad interest in the field of mathematics and his own standing in that field are indicated also by the fact that he was made a member of the Board of Trustees of the American Mathematical Society. He was also a member of the American Philosophical Society, the American Statistical Association and the Mathematical Association of America.

Those who had the privilege of close personal association with Mr. Henderson recognized in him not only an intellect of extraordinary grasp and power but a character equally to be admired. His was the modesty of the truly great mind of complete integrity and any pursuit of self-interest was foreign to his nature. The actuarial profession and those associated with him have suffered irreparable loss through his passing.

OBITUARY

F. ROBERTSON JONES

1872 - 1941

F. Robertson Jones, a Fellow of the Casualty Actuarial Society since 1928, a prominent figure in the insurance field for more than two decades and formerly a well-known educator, died at his home in Winter Park, Florida, on December 26, 1941. Mr. Jones was sixty-nine. Death ensued after a prolonged illness which required his retirement from active business responsibilities some years ago.

A writer of exceptional ability and a scholar of keen perception, Mr. Jones contributed a number of interesting and important papers to the Society during the twelve years of his fellowship.

In 1932 he contributed a written discussion on Clarence W. Hobbs' paper, "The Attitude of the Courts in Construing the Workmen's Compensation Act." Again, in 1935, Mr. Jones discussed Robert V. Sinnott's paper, "Comment on the Underwriting of Compensation for Silicosis," and at the May meeting in 1936 he discussed another of Mr. Hobbs' papers, "Social Insurance and the Constitution."

Mr. Jones' interest in the Casualty Actuarial Society was demonstrated long before he became a Fellow. In 1921, when he was Secretary-Treasurer of the Bureau of Personal Accident and Health Underwriters, he brought about a joint meeting of the Bureau and Society for an important discussion of non-cancellable accident and health insurance. From the time he was admitted as a Fellow, he was an active, studious and intellectual contributor to the progress of the Society.

Mr. Jones was born in Maryland. He was graduated by Western Maryland College, received a doctorate in philosophy from John Hopkins University, and devoted his early career to teaching. He was a member of the faculties of Western Maryland, Johns Hopkins, Union College and Bryn Mawr College.

In 1906 he made his first entrance into the insurance business, through the Fidelity and Casualty Company of New York. His duties there included editing the company's widely commended house publication. He rose to the position of Assistant Secretary and in 1912 left the Fidelity and Casualty Company to become Secretary-Treasurer of the Workmen's Compensation Publicity Bureau, which he helped to establish. In 1926 he was one of the founders of the Association of Casualty and Surety Executives, became its Secretary-Treasurer, and in 1929 was elected General Manager, a position he held until his retirement from active responsibilities.

When Mr. Jones retired as Secretary-Treasurer of the Bureau of Personal Accident and Health Underwriters he was made Honorary Secretary-Treasurer for life. He was a member of the "Committee of Nine" on Financial Responsibility for Automobile Accidents, Secretary-Treasurer of the International Association of Casualty and Surety Underwriters, Fellow of the Insurance Institute of America, and a member of the Advisory Board of the Federal Bureau of War Risk Insurance, the latter appointment having come to him during the First World War.

Mr. Jones was the author of many publications. He contributed several works on historical and economic subjects, and compiled the Digest of Workmen's Compensation Laws of the United States and Territories. His writings were read widely in most of the important insurance and legal periodicals of the time.

OBITUARY

WENDELL MELVILLE STRONG

1871 - 1942

Wendell Melville Strong, a Fellow of the Casualty Actuarial Society for more than twenty-five years, died at his home in Glen Ridge, New Jersey, on March 30, 1942.

Mr. Strong was born in Indianapolis, Indiana, on February 6, 1871, of old New England stock, and lived in New Jersey the greater part of his life. He attended Montclair High School, and graduated from Yale in 1893. Because of the excellence of his college record he was urged to continue with his mathematical studies and so entered upon graduate work at Cornell, from which he received a Master's Degree in 1894, and at the University of Goettingen in Germany. Subsequently he returned to Yale where he was a Fellow in Mathematics, 1894-1895, and an instructor, 1895-1900, and received the degree of Ph.D. in 1898. During this period of college activity he was the author, or joint author, of certain tables and text books which were widely used.

In 1900 Mr. Strong was induced by the late Emory McClintock to enter the Actuary's Department of The Mutual Life Insurance Company of New York, where he became, in due course, Assistant Actuary in 1904, Associate Actuary in 1911, and, in 1941, Vice-President and Actuary, which position he held until his retirement.

As was natural for one with his mathematical ability, Mr. Strong promptly qualified for membership in the Actuarial Society of America, being one of the first dozen individuals to become Fellows by examination. Throughout his career he was constructively active in the affairs of the Society, being Editor of the *Transactions* 1909-16, Secretary 1916-22, Vice-President 1922-23 and 1926-27, and President 1930-31, and, of course, a member of the Council from 1909 until his death. An unusual and valuable feature of his service to the Society was his series of Legal Notes, digesting court decisions in insurance cases, during the years 1910-27 and 1935-40.

Other scientific organizations to which Mr. Strong belonged were the American Institute of Actuaries, American Mathematical Society and London Mathematical Society. Early in his insurance career he studied law and after receiving an LL.B. degree from New York University was admitted to the New York Bar.

Mr. Strong will be missed and sincerely regretted, both in insurance and other business circles because of his professional attainments, and by a very wide circle of friends who had the privilege of enjoying his many impressive and engaging personal qualities.

CASUALTY ACTUARIAL SOCIETY

May 15, 1942

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	Paul Dorweiler	1943
	Charles M. Graham	1943
	Clarence A. Kulp	1944
	Jack J. Smick	1944
	Howard G. Crane	1944

*Terms expire at the annual meeting in November 1942.

†Terms expire at the annual meeting in November of the year given.

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ABSTRACT FROM THE MINUTES OF THE MEETING

MAY 15, 1942

The semi-annual (fifty-eighth regular) meeting of the Casualty Actuarial Society was held at the Hotel Biltmore, New York, on Friday, May 15, 1942.

President Blanchard called the meeting to order at 10:15 A.M. (War Time). The roll was called showing the following forty-six Fellows and seventeen Associates present:

FELLOWS

Ault
Barber
Batho, Elgin R.
Berkeley
Blanchard
Breiby
Brown, F. Stuart
Cahill
Carleton
Carlson
Comstock
Constable
Corcoran
Crane
Elliott
Farley
Fondiller
Ginsburgh
Goddard
Graham, C. M.
Haugh
Hobbs
Johnson, R. A., Jr.
Kardonsky
Kormes
Kulp
Lawrence
Linder
Lyons
Marshall
Matthews
Maycrink
Mills
Moore
Oberhaus
Perryman
Peters
Pruitt
Robbins
Shapiro
Smick
Smith, S. E.
Valerius
Van Tuyl
Williams
Wolfe

ASSOCIATES

Bailey, A. L.
Barron
Batho, Bruce
Black, N. C.
Buffler
Bugbee
Dowling
Eger
Fitz
Gibson
Malmuth
Marsh
Montgomery, J. C.
Potofsky
Rosenberg
Spencer
Stoke

By invitation, a number of officials of casualty companies and organizations were present.

Mr. Blanchard read his presidential address.

The minutes of the meeting held November 14, 1941, were approved as printed in the *Proceedings*.

The Secretary-Treasurer (Richard Fondiller) read the report of the Council and upon motion it was adopted by the Society. The Council had decided to waive the dues of all members in the Service commencing with the annual meeting of November, 1942.

The President announced the deaths, since the last meeting of the Society, of six Fellows, Charles H. Burhans, Miles M. Dawson, Robert C. L. Hamilton, Robert Henderson, F. Robertson Jones and Wendell M. Strong, and the memorial notices appearing in this Number were thereupon read.

The new papers printed in this Number were read.

Recess was taken for lunch at the Hotel until 2:00 P.M.

Informal discussion was participated in by a number of members and invited speakers upon the following topic:

"The Comprehensive Rating Plan"

Upon motion, the meeting adjourned at 4:15 P.M.

INVITED GUESTS PRESENT AT THE MEETING

Ralph H. Bell, President, Risk Research Institute, New York.

H. E. Curry, Actuary, Farm Bureau Mutual Automobile Insurance Company, Columbus, Ohio.

Joseph F. Collins, Chief of Rating Bureau, New York Insurance Department, New York.

George A. Dierauf, Secretary-Treasurer, Compensation Insurance Rating Board, New York.

Ernest A. Erickson, Underwriter and Statistician, Utilities Mutual Insurance Company, New York.

E. J. Gumbel, Professor, New School of Social Research, New York.

R. L. Inglis, Resident Vice-President, Associated Indemnity Corporation, New York.

I. D. Kelpy, Hartford Accident & Indemnity Company, Hartford, Conn.

Frederick C. Kessler, Secretary-Treasurer, Consolidated Taxpayers Mutual Insurance Company, Brooklyn, N. Y.

G. G. Levering, Automobile Underwriter, Lumbermens Mutual Casualty Company, Philadelphia, Pa.

Herbert M. Mathes, Examiner, New York Insurance Department, New York.

E. B. Patton, Director of Statistics, New York State Department of Labor, New York.

E. W. Sawyer, Attorney, National Bureau of Casualty and Surety Underwriters, New York.

Henry D. Sayer, General Manager, Compensation Insurance Rating Board, New York.

C. L. Schlier, Statistician, Compensation Rating and Inspection Bureau of New Jersey, Newark, N. J.

F. B. Schroetter, Underwriter, Zurich General Accident & Liability Insurance Company, New York.

T. H. Silver, President, Lumber Mutual Casualty Insurance Company, New York.

Victor A. Trundy, Resident Vice-President, American Mutual Liability Insurance Company, New York.

C. G. Vander Feen, Statistician, National Bureau of Casualty and Surety Underwriters, New York.

H. G. Wiberg, Assistant Secretary, Lumber Mutual Casualty Insurance Company, New York.

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CASUALTY ACTUARIAL SOCIETY

ORGANIZED 1914

1942 YEAR BOOK

Foreword

Officers, Council and Committees

List of Fellows and Associates

Officers of the Society since Organization

List of Deceased Members

List of Students

Constitution and By-Laws

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1941 Examination Questions

Papers in the Proceedings

(Addendum to Volume XXVIII of the *Proceedings*)

Corrected to February 1, 1942 **No. 21**

FOREWORD

The Casualty Actuarial Society was organized November 7, 1914 as the Casualty Actuarial and Statistical Society of America, with 97 charter members of the grade of Fellow. The present title was adopted on May 14, 1921. The object of the Society is the promotion of actuarial and statistical science as applied to the problems of casualty and social insurance by means of personal intercourse, the presentation and discussion of appropriate papers, the collection of a library and such other means as may be found desirable.

Prior to 1914 little technical study was given to the actuarial and underwriting problems of most of the branches of casualty insurance. The organization of the Society was brought about through the suggestion of Dr. I. M. Rubinow, who became the first president. The problems surrounding workmen's compensation were at that time the most urgent, and consequently many of the members played a leading part in the development of the scientific basis upon which workmen's compensation insurance now rests.

The members of the Society have also presented original papers to the *Proceedings* upon the scientific formulation of standards for the computation of both rates and reserves in accident and health insurance, liability, burglary, and the various automobile coverages. The presidential addresses constitute a valuable record of the current problems facing the casualty insurance business. Other papers in the *Proceedings* deal with acquisition costs, pension funds, legal decisions, investments, claims, reinsurance, accounting, statutory requirements, loss reserves, statistics, and the examination of casualty companies. The Committee on Compensation and Liability Loss Reserves submitted a report which has been printed in *Proceedings* No. 35 and No. 36. The Committee on Remarriage Table submitted a report including tables, printed in *Proceedings* No. 40. The Special Committee on Bases of Exposure submitted a report which is printed in *Proceedings* No. 43. The "Recommendations for Study" appear in *Proceedings* No. 54.

The lower grade of membership in the Society is that of Associate. Examinations have been held every year since organization; they are held on the first Wednesday and following Thursday in April, in various cities in the United States and Canada. The membership of the Society consists of actuaries, statisticians, and executives who are connected with the principal casualty companies and organizations in the United States and Canada. The Society has a total membership of 300, consisting of 173 Fellows and 127 Associates.

The annual meeting of the Society is held in New York in November and the semi-annual meeting is held in May. The twenty-fifth anniversary of the Society was appropriately celebrated in New York on November 16 and 17, 1939.

The Society twice a year issues a publication entitled the *Proceedings* which contains original papers presented at the meetings. The *Proceedings* also contain discussions of papers, reviews of books, current notes and legal notes. This Year Book is published annually and "Recommendations for Study" is a pamphlet which outlines the course of study to be followed in connection with the examinations for admission. These two booklets may be obtained free upon application to the Secretary-Treasurer, 90 John Street, New York.

CASUALTY ACTUARIAL SOCIETY

November 14, 1941

THE COUNCIL

*Officers:	Ralph H. Blanchard	*President*
	Harold J. Ginsburgh	*Vice-President*
	James M. Cahill	*Vice-President*
	Richard Fondiller	*Secretary-Treasurer*
	Clarence W. Hobbs	*Editor*
	Thomas O. Carlson	*Librarian*
†*Ex-Presidents:*	Francis S. Perryman	1944
	Sydney D. Pinney	1945
†*Ex-Vice-Presidents:*	Harmon T. Barber	1944
	William J. Constable	1944
†*Elected:*	Nels M. Valerius	1942
	John A. Mills	1942
	Albert Z. Skelding	1942
	Russell P. Goddard	1943
	Paul Dorweiler	1943
	Charles M. Graham	1943
	Clarence A. Kulp	1944
	Jack J. Smick	1944
	Howard G. Crane	1944

*Terms expire at the annual meeting in November 1942.

†Terms expire at the annual meeting in November of the year given.

COMMITTEES

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William R. Williamson

MEMBERSHIP OF THE SOCIETY, NOVEMBER 14, 1941

FELLOWS

Those marked (†) were Charter Members at date of organization, November 7, 1914.

Those marked (*) have been admitted as Fellows upon examination by the Society.

Date Admitted	
*Nov. 21, 1930	Ainley, John W., The Travelers Insurance Company, 700 Main Street, Hartford, Conn.
*Nov. 13, 1931	Ault, Gilbert E., Actuary, Church Pension Fund and Church Life Insurance Corporation, 20 Exchange Place, New York.
May 23, 1924	Bailey, William B., Economist, The Travelers Insurance Company, 700 Main Street, Hartford, Conn.
*Nov. 20, 1924	Barber, Harmon T., Assistant Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 18, 1932	Barter, John L., Secretary, Hartford Accident & Indemnity Co., Hartford, Conn.
*Nov. 13, 1931	Batho, Elgin R., Assistant Actuary, Equitable Life Insurance Company of Canada, Waterloo, Ontario, Canada.
†	Benjamin, Roland, Treasurer, Fidelity & Deposit Company of Maryland and American Bonding Company, Baltimore, Md.
*Nov. 22, 1934	Berkeley, Ernest T., Superintendent, Actuarial Department, Employers Liability Assurance Corporation, Boston, Mass.
†	Black, S. Bruce, President, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass.
Apr. 20, 1917	Blanchard, Ralph H., Professor of Insurance, School of Business, Columbia University, New York.
†	Breiby, William, Vice-President, Pacific Mutual Life Insurance Company, Los Angeles, Cal.
*Nov. 18, 1927	Brown, F. Stuart, Statistician, Indemnity Insurance Co. of North America, 1600 Arch St., Philadelphia, Pa.
Oct. 22, 1915	Brown, Herbert D., (Retired), Glenora, Yates County, New York.
†	Buck, George B., Consulting Actuary for Pension Funds, 150 Nassau Street, New York.
*Nov. 18, 1932	Burhans, Charles H., Standard Accident Insurance Company, 640 Temple Avenue, Detroit, Mich.

FELLOWS

Date Admitted	
Apr. 20, 1917	Burhop, William H., Executive Vice-President, Employers Mutual Liability Insurance Company, Wausau, Wis.
*Nov. 23, 1928	Burling, William H., Assistant Actuary, The Travelers Insurance Company, 700 Main Street, Hartford, Conn.
*Nov. 19, 1929	Cahill, James M., Actuary, Compensation Insurance Rating Board, 125 Park Avenue, New York.
*Nov. 18, 1932	Cameron, Freeland R., Assistant Manager, Automobile Department, American Surety Company, 100 Broadway, New York.
†	Cammack, Edmund E., Vice-President and Actuary, Aetna Life Insurance Company, Hartford, Conn.
*Nov. 17, 1938	Carleton, John W., Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass.
*Nov. 21, 1930	Carlson, Thomas O., Assistant Actuary, National Bureau of Casualty & Surety Underwriters, 60 John Street, New York.
†	Carpenter, Raymond V., (Retired), 66 Park Avenue, New York.
Mar. 20, 1941	Carver, Harry C., Professor of Mathematics, University of Michigan, Ann Arbor, Michigan.
*Nov. 13, 1936	Cleary, Arthur E., Actuary, Massachusetts Insurance Department, 100 Nashua Street, Boston, Mass.
*Nov. 15, 1918	Coates, Barrett N., Coates and Herfurth, Consulting Actuaries, 582 Market Street, San Francisco, Calif.
*Nov. 17, 1922	Coates, Clarence S., Assistant Secretary, Lumbermens Mutual Casualty Company, Mutual Insurance Bldg., Chicago, Ill.
Oct. 27, 1916	Cogswell, Edmund S., First Deputy Commissioner of Insurance, 100 Nashua Street, Boston, Mass.
Feb. 19, 1915	Collins, Henry, Manager and Attorney, Ocean Accident & Guarantee Corporation and President, Columbia Casualty Company, 1 Park Avenue, New York.
*Nov. 23, 1928	Comstock, W. Phillips, Statistician, London Guarantee & Accident Company, 55 Fifth Avenue, New York.
*Nov. 22, 1934	Constable, William J., Secretary, Lumbermens Mutual Casualty Company, 342 Madison Avenue, New York.
*Nov. 22, 1934	Cook, Edwin A., Assistant Secretary, Interboro Mutual Indemnity Insurance Company, 270 Madison Avenue, New York.
†	Copeland, John A., Consulting Actuary, Candler Building, Atlanta, Ga.
*Nov. 18, 1925	Corcoran, William M., Consulting Actuary, Wolfe, Corcoran & Linder, 116 John Street, New York.
†	Cowles, Walter G., Vice-President, The Travelers Insurance Company, 700 Main Street, Hartford, Conn.
*Nov. 19, 1926	Crane, Howard G., Treasurer, General Reinsurance Corporation, 90 John Street, New York.
*Nov. 18, 1932	Davies, E. Alfred, Asst. to Treasurer, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass.
*Nov. 18, 1927	Davis, Evelyn M., Woodward, Ryan, Sharp & Davis, Consulting Actuaries, 90 John Street, New York.
†	Dawson, Miles M., Consulting Actuary and Counsellor at Law, 500 Fifth Avenue, New York.

FELLOWS

Date Admitted	
†	Dearth, Elmer H., (Retired), 1156 Lincoln Avenue, St. Paul, Minn.
†	DeKay, Eckford C., President, DeKay & Company, 84 William Street, New York.
*Nov. 17, 1920	Dorweiler, Paul, Actuary, Aetna Casualty & Surety Company, Hartford, Conn.
May 19, 1915	Dunlap, Earl O., Third Vice President, Metropolitan Life Insurance Company, 1 Madison Avenue, New York.
*Nov. 24, 1933	Edwards, John, Casualty Actuary, Ontario Insurance Department, 91 Arundel Avenue, Toronto, Ontario, Canada.
*Nov. 15, 1940	Elliott, George B., Compensation Actuary, Pennsylvania Insurance Department, 938 Public Ledger Bldg., Philadelphia, Pa.
*Nov. 17, 1922	Elston, James S., Assistant Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 15, 1935	Eppink, Walter T., Vice-President, Merchants' Mutual Casualty Co., Casualty Insurance Building, Buffalo, New York.
†	Fackler, Edward B., Consulting Actuary, Fackler & Company, 8 West 40th Street, New York.
†	Fallow, Everett S., Actuary, Accident Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 15, 1940	Farley, Jarvis, Actuary and Asst. Treasurer, Massachusetts Indemnity Co., 632 Beacon Street, Boston, Mass.
†	Farrer, Henry, Insurance Company of North America, 99 John Street, New York.
*Nov. 15, 1935	Fitzhugh, Gilbert W., Assistant Actuary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
Feb. 19, 1915	Flanigan, James E., 111 John Street, New York.
†	Flynn, Benedict D., Vice-President and Actuary, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
Feb. 19, 1915	Fondiller, Richard, Woodward and Fondiller, Consulting Actuaries, 90 John Street, New York.
†	Forbes, Charles S., Treasurer, Smyth, Sanford and Gerard, Inc., Insurance Brokers, 68 William Street, New York.
*Nov. 22, 1934	Fuller, Gardner V., Secretary, National Council on Compensation Insurance, 45 East 17th Street, New York.
†	Franklin Charles H., (Retired) 4622 East 40th St., Seattle, Washington.
*Nov. 18, 1927	Fredrickson, Carl H., Actuary, Canadian Underwriters Association, 55 York Street, Toronto, Canada.
†	Furze, Harry, (Retired), 42 Douglas Road, Glen Ridge, N. J.
Feb. 19, 1915	Garrison, Fred S., Secretary, The Travelers Indemnity Co., 700 Main Street, Hartford, Conn.
*Nov. 20, 1924	Ginsburgh, Harold J., Assistant Vice-President, American Mutual Liability Insurance Co., 142 Berkeley Street, Boston, Mass.

FELLOWS

Date Admitted	
*Nov. 21, 1930	Glenn, J. Bryan, Chief Actuary, Railroad Retirement Board, Washington, D. C.
*Nov. 13, 1931	Goddard, Russell P., American Mutual Liability Insurance Company, 142 Berkeley Street, Boston, Mass.
†	Goodwin, Edward S., 750 Main Street, Hartford, Conn.
*Nov. 19, 1926	Graham, Charles M., Associate Actuary, State Insurance Fund, 625 Madison Avenue, New York.
Oct. 22, 1915	Graham, Thompson B., Fourth Vice President, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
†	Graham, William J., Vice-President, Equitable Life Assurance Society, 393 Seventh Avenue, New York.
May 25, 1923	Granville, William A., Vice-President, Washington National Insurance Co., 610 Church Street, Evanston, Ill.
†	Greene, Winfield W., Vice-President, General Reinsurance Corporation, 90 John Street, New York.
†	Hamilton, Robert C. L., (Retired) 80 Woodrow Street, Hartford, Conn. (Deceased November 15, 1941)
†	Hammond, H. Pierson, Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main St., Hartford, Conn.
Oct. 27, 1916	Hardy, Edward R., Secretary-Treasurer, Insurance Institute of America, Inc., 80 John Street, New York.
Oct. 22, 1915	Hatch, Leonard W., (Retired), 425 Pelham Manor Road, Pelham Manor, New York.
*Nov. 19, 1926	Haugh, Charles J., Actuary, National Bureau of Casualty & Surety Underwriters, 60 John Street, New York.
Nov. 17, 1920	Heath, Charles E., 281 Storer Avenue, New Rochelle, N. Y.
Nov. 21, 1919	Henderson, Robert, (Retired) Crown Point, Essex County, New York.
May 23, 1924	Hobbs, Clarence W., Special Representative of the National Association of Insurance Commissioners, National Council on Compensation Insurance, 45 East 17th Street, New York.
Oct. 22, 1915	Hodgkins, Lemuel G., Secretary, Massachusetts Protective Association and Massachusetts Protective Life Assurance Co., Worcester, Mass.
†	Hoffman, Frederick L., Consulting Statistician, 1978 Sunset Boulevard, San Diego, California.
Oct. 22, 1915	Holland, Charles H., Bennett & Palmer, 165 Broadway, New York.
*Nov. 22, 1934	Hooker, Russell O., Actuary, Connecticut Insurance Department, Hartford, Conn.

FELLOWS

Date Admitted	
Nov. 18, 1932	Huebner, Solomon S., Professor of Insurance, University of Pennsylvania, Philadelphia, Pa.
†	Hughes, Charles, Principal Insurance Report Auditor, New York Insurance Department, 61 Broadway, New York.
Nov. 19, 1929	Hull, Robert S., Unemployment Compensation Division, Social Security Board, Washington, D. C.
†	Hunt, Burritt A., Assistant Secretary, Aetna Casualty and Surety Co., Hartford, Conn.
†	Hunter, Arthur, (Retired), 124 Lloyd Road, Montclair, N. J.
Nov. 18, 1921	Hutcheson, William A., (Retired), Merchiston Farm, Gladstone, N. J.
Feb. 25, 1916	Jackson, Charles W., Consulting Actuary, Woodward and Fondiller, 90 John Street, New York.
*Nov. 19, 1929	Jackson, Henry H., Actuary, National Life Insurance Co., Montpelier, Vt.
*Nov. 14, 1914	Johnson, Roger A., Jr., Compensation Insurance Rating Board, 125 Park Avenue, New York.
May 19, 1915	Johnson, William C., Vice-President, Massachusetts Protective Association and Massachusetts Protective Life Assurance Co., Worcester, Mass.
Nov. 23, 1928	Jones, F. Robertson, Secretary, Association of Casualty and Surety Executives; and Secretary-Treasurer, Bureau of Personal Accident and Health Underwriters, 60 John Street, New York (Deceased December 27, 1941).
*Nov. 16, 1939	Jones, Harold M., Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass.
*Nov. 17, 1938	Kardonsky, Elsie, Statistician, Compensation Insurance Rating Board, Pershing Square Bldg., 125 Park Avenue, New York.
Nov. 17, 1938	Kelly, Gregory C., General Manager, Pennsylvania Compensation Rating & Inspection Bureau, 938 Public Ledger Bldg., Philadelphia, Pa.
*Nov. 19, 1926	Kelton, William H., Assistant Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 21, 1919	Kirkpatrick, A. Loomis, Insurance Editor, Chicago Journal of Commerce, 12 East Grand Avenue, Chicago, Ill.
*Nov. 14, 1941	Koloditzky, Morris, State Insurance Fund, 625 Madison Avenue, New York.
*Nov. 24, 1933	Kormes, Mark, Consulting Actuary, 341 Madison Avenue, New York.
Nov. 23, 1928	Kulp, Clarence A., Professor of Insurance, University of Pennsylvania, Logan Hall, 36th Street and Woodland Avenue, Philadelphia, Pa.
Feb. 19, 1915	Laird, John M., Vice-President, Connecticut General Life Insurance Co., 55 Elm Street, Hartford, Conn.
Nov. 13, 1931	La Mont, Stewart M., (Retired), 305 Sheldon Avenue, New Rochelle, New York.
*Nov. 24, 1933	Lange, John R., Chief Actuary, Wisconsin Insurance Department, State House, Madison, Wis.

FELLOWS

Date Admitted

Nov. 17, 1922 Lawrence, Arnette R., Special Deputy Commissioner of Banking and Insurance, 60 Park Place, Newark, N. J.

† Leal, James R., Vice-President and Secretary, Interstate Life and Accident Co., Interstate Building, 540 McCallie Avenue, Chattanooga, Tenn.

† Leslie, William, General Manager, National Bureau of Casualty & Surety Underwriters, 60 John Street, New York.

*Nov. 20, 1924 Linder, Joseph, Consulting Actuary, Wolfe, Corcoran & Linder, 116 John Street, New York.

*Nov. 13, 1936 Lyons, Daniel J., Chief Assistant Actuary, New Jersey Department of Banking and Insurance, Trenton, N. J.

† Magoun, William N., (Retired), 33 Fearing Road, Hingham, Mass.

*Nov. 23, 1928 Marshall, Ralph M., Assistant Actuary, National Council on Compensation Insurance, 45 East 17th Street, New York.

*Nov. 18, 1927 Masterson, Norton E., Vice-President and Actuary, Hardware Mutual Casualty Co., Stevens Point, Wis.

*Nov. 19, 1926 Matthews, Arthur N., The Travelers Insurance Co., 700 Main Street, Hartford, Conn.

May 19, 1915 Maycrink, Emma C., Examiner, New York Insurance Department, 61 Broadway, New York.

*Nov. 16, 1923 McClurg, D. Ralph, Secretary and Treasurer, National Equity Life Insurance Co., Little Rock, Ark.

*Nov. 15, 1935 McConnell, Matthew H., Jr., 1465 Hempstead Road, Penn Wynne, Pa.

May 23, 1919 McDougald, Alfred, Ellerslie, Beddington Gardens, Wallington Surrey, England.

*Oct. 31, 1917 McManus, Robert J., Statistician, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.

† Michelbacher, Gustav F., Vice-President and Secretary, Great American Indemnity Co., 1 Liberty Street, New York.

*Nov. 17, 1938 Miller, John H., Vice President and Actuary, Monarch Life Insurance Company, Springfield, Mass.

† Milligan, Samuel, Second Vice-President, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.

*Nov. 18, 1937 Mills, John A., Secretary and Actuary, Lumbermens Mutual Casualty Co., and American Motorists Insurance Co., Mutual Insurance Bldg., Chicago, Ill.

*Nov. 18, 1921 Montgomery, Victor, President, Pacific Employers Insurance Co., 1033 So. Hope Street, Los Angeles, Calif.

Nov. 19, 1926 Mooney, William L., (Retired), 4 Pleasant Street, West Hartford, Conn.

FELLOWS

Date Admitted	
†	Moore, George D., 13 Emerson Street, East Orange, N. J.
†	Mowbray, Albert H., Consulting Actuary, 806 San Luis Road, Berkeley, Calif.
*Nov. 17, 1920	Mueller, Louis H., President, Associated Insurance Fund, 332 Pine Street, San Francisco, Calif.
†	Mullaney, Frank R., Vice-President and Secretary, American Mutual Liability Insurance Co., and Secretary, American Policyholders' Insurance Co., 142 Berkeley Street, Boston, Mass.
May 28, 1920	Murphy, Ray D., Vice-President and Actuary, Equitable Life Assurance Society, 393 Seventh Avenue, New York.
*Nov. 15, 1935	Oberhaus, Thomas M., Office of Woodward and Fondiller, Consulting Actuaries, 90 John Street, New York.
†	Olifiers, Edward, Actuary and Managing Director, Previdencia do Sul, Caixa Postal 76, Porto Alegre, Brazil.
Nov. 18, 1927	O'Neill, Frank J., President, Royal Indemnity Co., and Eagle Indemnity Co., 150 William Street, New York.
†	Orr, Robert K., 226 S. Logan Street, Lansing, Mich.
*Nov. 21, 1919	Outwater, Olive E., Actuary, Benefit Association of Railway Employees, 901 Montrose Avenue, Chicago, Ill.
*Nov. 18, 1921	Perkins, Sanford B., Secretary, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 21, 1930	Perryman, Francis S., Secretary and Actuary, Royal Indemnity Co., and Eagle Indemnity Co., 150 William Street, New York.
*Nov. 14, 1941	Peters, Stefan, Compensation Insurance Rating Board, 125 Park Avenue, New York.
Nov. 19, 1926	Phillips, Jesse S., Chairman of Board, Great American Indemnity Co., 1 Liberty Street, New York.
*Nov. 24, 1933	Pickett, Samuel C., Assistant Actuary, Connecticut Insurance Department, Hartford, Conn.
*Nov. 17, 1922	Pinney, Sydney D., Associate Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 13, 1931	Pruitt, Dudley M., Statistician, Eastern Department, Fireman's Fund Indemnity Co., 116 John Street, New York.
May 23, 1919	Richardson, Frederick, Deputy Chairman of the Board, General Accident Fire and Life Assurance Corporation, Perth, Scotland.
*Nov. 19, 1926	Richter, Otto C., American Telephone & Telegraph Co., 195 Broadway, New York.
May 24, 1921	Riegel, Robert, Professor of Statistics and Insurance, University of Buffalo, Buffalo, New York.

FELLOWS

Date Admitted	
*Nov. 16, 1939	Robbins, Rainard B., Vice President and Secretary, Teachers Insurance and Annuity Association, 522 Fifth Avenue, New York.
*Nov. 16, 1923	Roeber, William F., General Manager, National Council on Compensation Insurance, 45 East 17th Street, New York.
†	Scheitlin, Emil, Treasurer, Globe Indemnity Co., 150 William Street, New York.
*Nov. 18, 1937	Shapiro, George I., First Vice President and General Manager, Public Service Mutual Casualty Ins. Corp., 342 Madison Avenue, New York.
*Nov. 13, 1931	Silverman, David, c/o Wolfe, Corcoran & Linder, 116 John Street, New York.
*Nov. 24, 1933	Sinnott, Robert V., Hartford Accident and Indemnity Company, 690 Asylum Avenue, Hartford, Conn.
*Nov. 19, 1929	Skelding, Albert Z., Actuary, National Council on Compensation Insurance, 45 East 17th Street, New York.
*Nov. 19, 1929	Skillings, Edward S., Asst. Comptroller, Allstate Insurance Co., Allstate Fire Insurance Co., 20 North Wacker Drive, Chicago, Ill.
*Nov. 18, 1932	Smick, Jack J., National Council on Compensation Insurance, 45 East 17th Street, New York.
*Nov. 15, 1940	Smith, Seymour E., Casualty Actuarial Department, Travelers Insurance Co., Hartford, Conn.
*Nov. 24, 1933	St. John, John B., Social Security Board, Bureau of Old Age Insurance, Washington, D. C.
Nov. 18, 1927	Stone, Edward C., U. S. General Manager and Attorney, Employers' Liability Assurance Corporation, Limited, and President, American Employers' Insurance Company, 110 Milk Street, Boston, Mass.
Feb. 25, 1916	Strong, Wendell M., (Retired), 29 Hillcrest Road, Glen Ridge, N. J.
Oct. 22, 1915	Strong, William Richard, No. 4 "Sheringham," Cotham Road, Kew, Victoria, Australia.
*Nov. 17, 1920	Tarbell, Thomas F., Actuary, Casualty Actuarial Department. The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
†	Thompson, John S., Vice-President and Mathematician, Mutual Benefit Life Insurance Co.,300 Broadway, Newark, N. J.
†	Train, John L., President and General Manager, Utica Mutual Insurance Co., 185 Genesee Street, Utica, New York.
Nov. 17, 1922	Traversi, Antonio T., Consulting Actuary and Accountant, London Bank Chambers, Martin Place, Sydney, Australia.
*Nov. 23, 1928	Valerius, Nels M., Aetna Casualty and Surety Co., Hartford, Conn.
*Nov. 21, 1919	Van Tuyl, Hiram O., Supt., Accounts Department, London Guarantee & Accident Co., 55 Fifth Avenue, New York.

FELLOWS

Date Admitted	
*Nov. 17, 1920	Waite, Alan W., Assistant Secretary, Aetna Casualty and Surety Co., Hartford, Conn.
*Nov. 15, 1935	Waite, Harry V., Statistician, The Travelers Fire Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 18, 1925	Warren, Lloyd A. H., Professor of Actuarial Science, University of Manitoba, 64 Niagara Street, Winnipeg, Manitoba, Canada.
†	Whitney, Albert W., Consulting Director, National Conservation Bureau, Association of Casualty & Surety Executives, 60 John Street, New York.
*Nov. 15, 1935	Williams, Harry V., Rating & Research Dept., Hartford Accident and Indemnity Co., Hartford, Conn.
Nov. 14, 1941	Williamson, William R., Actuarial Consultant, Social Security Board, Washington, D. C.
*Nov. 13, 1931	Wittick, Herbert E., Secretary, Pilot Insurance Co., 199 Bay Street, Toronto, Canada.
†	Wolfe, Lee J., Consulting Actuary, Wolfe, Corcoran & Linder, 116 John Street, New York.
May 24, 1921	Wood, Arthur B., President and Managing Director, Sun Life Assurance Company of Canada, Montreal, Canada.

ASSOCIATES

Those marked (*) have been enrolled as Associates upon examination by the Society.

Numerals indicate Associateship Part V and Fellowship examination parts credited.

Date Enrolled	
May 23, 1924	Acker, Milton, Manager, Compensation and Liability Department, National Bureau of Casualty and Surety Underwriters, 60 John Street, New York.
*Nov. 15, 1918	Ackerman, Saul B., Professor of Insurance, New York University, 90 Trinity Place, New York.
*Nov. 16, 1939	Ain, Samuel N., Office of George B. Buck, Consulting Actuary for Pension Funds, 150 Nassau Street, New York.
Apr. 5, 1928	Allen, Austin F., President and General Manager, Texas Employers Insurance Association and Employers Casualty Co., Dallas, Texas.
Nov. 15, 1918	Ankers, Robert E., Secretary and Treasurer, Continental Life Insurance Co., Investment Building, Washington, D. C.
*Nov. 21, 1930	Archibald, A. Edward, Actuary, Volunteer State Life Insurance Company, Chattanooga, Tenn. (V, I.)
*Nov. 16, 1939	Bailey, Arthur L., Statistician, American Mutual Alliance, 60 E. 42nd Street, New York.
*Nov. 24, 1933	Barron, James C., Asst. Treasurer, General Reinsurance Corporation, 90 John Street, New York. (V, I, III.)
*Nov. 14, 1941	Bart, Robert D., (American) Lumbermen's Mutual Casualty Co., 4750 Sheridan Road, Chicago, Ill.
*Nov. 23, 1928	Bateman, Arthur E., Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass. (V, I.)
*Nov. 15, 1940	Batho, Bruce, Asst. Actuary, Illinois Insurance Department, Springfield, Illinois.
*Nov. 18, 1925	Bittel, W. Harold, Associate Actuary, Woodward, Ryan, Sharp, & Davis, 90 John Street, New York.
Nov. 17, 1920	Black, Nellas C., Statistician, Maryland Casualty Co., Baltimore, Md.
*Nov. 15, 1940	Blackhall, John M., Monarch Life Insurance Co., Springfield, Mass.
*Nov. 22, 1934	Bomse, Edward L., National Bureau of Casualty & Surety Underwriters, 60 John Street, New York.
*Nov. 23, 1928	Bower, Perry S., Great West Life Assurance Company, Winnipeg, Manitoba, Canada.
*Nov. 15, 1935	Brereton, Cloudesley R., Dominion Department of Insurance, Ottawa, Ontario, Canada.
*Nov. 15, 1918	Brunnquell, Helmuth G., Assistant Actuary, The Northwestern Mutual Life Insurance Co., Milwaukee, Wis.
*Oct. 22, 1915	Buffler, Louis, Director, Underwriting Department, State Insurance Fund, 625 Madison Avenue, New York.
*Nov. 20, 1924	Bugbee, James M., Asst. Manager, Automobile Department, Maryland Casualty Co., Baltimore, Md.
Mar. 31, 1920	Burt, Margaret A., Office of George B. Buck, Consulting Actuary, 150 Nassau Street, New York.
Nov. 17, 1922	Cavanaugh, Leo D., President, Federal Life Insurance Co., 168 N. Michigan Avenue, Chicago, Ill.

Date Enrolled	
*Nov. 18, 1927	Chen, S. T., Actuary, China United Assurance Society, 104 Bubbling Well Road, Shanghai, China.
*Nov. 18, 1927	Conrod, Stuart F., Actuary, Loyal Protective Life Insurance Co., Co., 19 Deerfield Street, Boston, Mass.
*Nov. 24, 1933	Crawford, William H., Secretary, Fireman's Insurance Co. of Newark, N. J. & Affiliated Fire & Casualty Co's Pacific Dept., 220 Bush Street, San Francisco, Cal. (V, I.)
*Nov. 18, 1932	Crimmins, Joseph B., Metropolitan Life Insurance Co., 1 Madison Avenue, New York. (V, I.)
*Nov. 18, 1925	Davis, Malvin E., Associate Actuary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
*Nov. 24, 1933	Davis, Reginald S., Assistant Comptroller, State Compensation Insurance Fund, San Francisco, Calif. (V, I.)
*Nov. 14, 1941	Dowling, William F., Asst. Manager, Lumber Mutual Casualty Co., 41 E. 42nd Street, New York.
May 25, 1923	Economidy, Harilaus E., Hutchinson, Bonner and Burleson, Certified Public Accountants, Praetorian Bldg., Dallas, Texas.
June 5, 1925	Eger, Frank A., Secretary-Comptroller, Insurance Company of North America and Affiliated Companies, 1600 Arch Street, Philadelphia, Pa.
*Nov. 16, 1923	Fitz, L. Leroy, American Mutual Liability Insurance Co., 142 Berkeley Street, Boston, Mass. (V, I.)
*Nov. 18, 1927	Fitzgerald, Amos H., Assistant Actuary, The Prudential Insurance Company of America, Newark, N. J. (V, I.)
*Nov. 16, 1923	Fleming, Frank A., Actuary, American Mutual Alliance, 60 East 42nd Street, New York.
Nov. 20, 1924	Froberg, John, Manager, California Inspection Rating Bureau, 500 Sansome Street, San Franciso, Calif.
*Nov. 13, 1936	Fruechtemeyer, Fred J., Liberty Mutual Insurance Co., 175 Berkeley Street, Boston, Mass. (V, I.)
*Nov. 19, 1929	Furnivall, Maurice L., Assistant Actuary, Accident Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn. (V, I.)
*Nov. 22, 1934	Gately, John J., General Reinsurance Corporation, 90 John Street. New York. (V, I.)
*Nov. 18, 1932	Getman, Richard A., Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn. (V, I.)
*Nov. 17, 1922	Gibson, Joseph P., Jr., Vice President, Excess Insurance Company of America, 99 John Street, New York.
*Nov. 16, 1923	Gildea, James F., The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
Nov. 19, 1929	Gordon, Harold R., Executive Secretary, Health & Accident Underwriters Conference, 176 West Adams Street, Chicago, Ill.
*Nov. 18, 1927	Green, Walter C., Consulting Actuary, 211 West Wacker Drive, Chicago, Ill.
*Nov. 15, 1940	Grossman, Eli A., 26 California Street, Mount Vernon, New York.
*Nov. 15, 1935	Guertin, Alfred N., Actuary, New Jersey Department of Banking and Insurance, Trenton, N. J., (V, I.)

ASSOCIATES

Date Enrolled	
*Nov. 16, 1939	Hagen, Olaf E., Metropolitan Life Insurance Company, 1 Madison Avenue, New York.
*Nov. 18, 1921	Haggard, Robert E., Superintendent, Permanent Disability Rating Department, Industrial Accident Commission, State Building, San Francisco, Calif.
*Nov. 17 1922	Hall, Hartwell L., Associate Actuary, Connecticut Insurance Department, Hartford, Conn.
*Nov. 13, 1936	Ham, Hugh P., British America Assurance Co., 807 Electric Railway Chambers, Winnipeg, Manitoba, Canada. (V, I.)
Mar. 24, 1932	Harris, Scott, Vice-President, Joseph Froggatt & Co., 74 Trinity Place, New York.
*Mar. 25, 1924	Hart, Ward Van Buren, Assistant Actuary, Connecticut General Life Insurance Co., Hartford, Conn. (V, I.)
Nov. 21, 1919	Haydon, George F., General Manager, Wisconsin Compensation Rating & Inspection Bureau, 715 N. Van Buren Street, Milwaukee, Wis.
Nov. 17, 1927	Hipp, Grady H., Actuary, State Insurance Fund, 625 Madison Avenue, New York.
Nov. 19, 1929	Jacobs, Carl N., President, Hardware Mutual Casualty Co., Stevens Point, Wis.
*Nov. 18, 1921	Jensen, Edward S., Asst. Secretary, Occidental Life Insurance Co., Los Angeles, Calif. (II, III.)
Nov. 21, 1930	Jones, H. Lloyd, Deputy General Attorney, of Phoenix-London Group, Vice-President, Phoenix Indemnity Company, and Deputy United States Manager, London Accident & Guarantee Co., 55 Fifth Avenue, New York.
*Nov. 21, 1919	Jones, Loring D., Assistant Director, State Insurance Fund, 625 Madison Avenue, New York.
*Nov. 15, 1940	Kelly, Robert G., 723 North 64th Street, Philadelphia, Pa.
*Nov. 17, 1922	Kirk, Carl L., Assistant U. S. Manager, Zurich General Accident & Liability Insurance Co., 135 South LaSalle Street, Chicago, Ill.
*Nov. 15, 1935	Kitzrow, E. W., Vice-President, Hardware Mutual Casualty Co., Stevens Point, Wis. (V, I.)
*Nov. 16, 1939	Knowles, Frederick, 2260 Beaconsfield Ave., N.D.G., Montreal, Canada.
*Nov. 18, 1937	Lassow, William, Statistician, Board of Transportation of the City of New York, 250 Hudson Street, New York. (V.)
*Nov. 17, 1938	Lieblein, Julius, 2095 Honeywell Ave., Bronx, New York.
*Nov. 13, 1931	MacKeen, Harold E., The Travelers Insurance Co., 700 Main Street, Hartford, Conn. (V, I.)
Mar. 24, 1932	Magrath, Joseph J., Executive Assistant, Chubb & Sons, 90 John Street, New York.
*Nov. 18, 1925	Malmuth, Jacob, Examiner, New York Insurance Department, 61 Broadway, New York.
Mar. 24, 1927	Marsh, Charles V. R., Comptroller and Assistant Treasurer, Fidelity & Deposit Co. and American Bonding Co., Baltimore, Md.
*Nov. 13, 1936	Mayer, William H., Jr., Actuarial Department, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
*Nov. 17, 1922	McIver, Rosswell A., Actuary, Washington National Insurance Co., 610 Church Street, Evanston, Ill.

ASSOCIATES

Date Enrolled	
*Nov. 17, 1922	Michener, Samuel M., Actuary, Columbus Mutual Life Insurance Co., 580 East Broad Street, Columbus, Ohio, (V., I)
*Nov. 13, 1931	Miller, Henry C., Comptroller, State Compensation Insurance Fund, 450 McAllister Street, San Francisco, Calif. (V, I.)
*Nov. 19, 1926	Milne, John L., Actuary, Presbyterian Ministers' Fund for Life Insurance, 1805 Walnut Street, Philadelphia, Pa.
*Nov. 18, 1937	Minor, Eduard H., Accident and Health Department, Metropolitan Life Insurance Company, 1 Madison Avenue, New York.
Nov. 17, 1922	Montgomery, John C., Secretary and Assistant Treasurer, Bankers Indemnity Insurance Co., 15 Washington Street, Newark, N. J.
May 25, 1923	Moore, Joseph P., President, North American Accident Insurance Co., 455 Craig Street, W., Montreal, Canada.
*Nov. 21, 1919	Mothersill, Rolland V., President, Anchor Casualty Co., Anchor Insurance Building, 758 So. Mississippi River Boulevard, St. Paul, Minn. (II, III.)
*Nov. 18, 1937	Myers, Robert J., Senior Actuarial Mathematician, Social Security Board, Washington, D. C.
*Nov. 19, 1929	Muller, Fritz, Director, Agrippina Life Insurance Stock Co., Berlin, W. 30 Mackensenstr. 16, Germany.
*Nov. 15, 1935	Nelson, S. Tyler, Utica Mutual Insurance Co., 185 Genesee Street, Utica, New York.
*Oct. 27, 1916	Newell, William, Secretary, Assigned Risk Pool, 60 John Street, New York. (V., I.)
*Nov. 23, 1928	Newhall, Karl, Group Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 18, 1925	Nicholson, Earl H., Actuary, Joseph Froggatt & Co., 74Trinity Place, New York.
May 23, 1919	Otto, Walter E., President, Michigan Mutual Liability Co., 163 Madison Avenue, Detroit, Mich.
*Nov. 19, 1926	Overholser, Donald M., Office of George B. Buck, Consulting Actuary for Pension Funds, 150 Nassau Street, New York.
Nov. 20, 1924	Pennock, Richard M., Actuary, Pennsylvania Manufacturers' Association Casualty Insurance Co., Finance Building, Philadelphia, Pa.
Nov. 19, 1929	Phillips, John H., Vice-President and Actuary, Employers' Mutual Liability Insurance Co., Wausau, Wis.
*Nov. 17, 1920	Pike, Morris, Vice-President and Actuary, Union Labor Life Insurance Co., 570 Lexington Avenue, New York.
*Nov. 23, 1928	Piper, Kenneth B., Actuary, Provident Life and Accident Insurance Co., Chattanooga, Tenn. (V, I.)
*Nov. 18, 1927	Poissant, William A., The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 17, 1922	Poorman, William F., Vice-President and Actuary, Central Life Assurance Society, Fifth and Grand Avenues, Des Moines, Iowa. (V, I.)
*Nov. 13, 1936	Potofsky, Sylvia, State Insurance Fund, 625 Madison Avenue, New York. (V.)

ASSOCIATES

Date Enrolled	
Nov. 17, 1922	POWELL, JOHN M., President, Loyal Protective Insurance Co. and Loyal Life Insurance Co., 19 Deerfield Street, Boston, Mass. (V, I.)
*Nov. 15, 1918	RAYWID, JOSEPH, President, Joseph Raywid & Co., Inc., 92 William Street, New York.
Nov. 19, 1932	RICHARDSON, HARRY F., Secretary-Treasurer, National Council on Compensation Insurance, 45 East 17th Street, New York.
*Nov. 18, 1932	ROBERTS, JAMES A., Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn. (V, I.)
*Nov. 15, 1940	ROSENBERG, NORMAN, Examiner, Department of Banking and Insurance, Trenton, New Jersey. (I.)
*Nov. 18, 1927	SARASON, HARRY M., Assistant Actuary, General American Life Insurance Co., 1501 Locust Street, St. Louis, Mo.
Nov. 16, 1923	SAWYER, ARTHUR, Globe Indemnity Co., 150 William Street, New York.
*Nov. 20, 1930	SEVILLA, EXEQUIEL S., Actuary, National Life Insurance Co., P. O. Box 2856, Manila, Philippine Islands.
*Nov. 20, 1924	SHEPPARD, NORRIS E., Professor of Mathematics, University of Toronto, Toronto, Canada. (V, I.)
Nov. 15, 1918	SIBLEY, JOHN L., Assistant Secretary, United States Casualty Co., 60 John Street, New York.
*Nov. 18, 1921	SMITH, ARTHUR G., Assistant General Manager, Compensation Insurance Rating Board, Pershing Square Bldg., 125 Park Avenue, New York.
*Nov. 19, 1926	SOMERVILLE, WILLIAM F., Assistant Secretary, St. Paul Mercury Indemnity Co., St. Paul, Minn. (V, I.)
*Nov. 18, 1925	SOMMER, ARMAND, Assistant to Vice-President, Continental Casualty Co., 910 So. Michigan Avenue, Chicago, Ill.
*Nov. 15, 1918	SPENCER, HAROLD S., Statistician, Aetna Casualty and Surety Co., Hartford, Conn.
Nov. 20, 1924	STELLWAGEN, HERBERT P., Executive Vice-President, Indemnity Insurance Company of North America, 1600 Arch Street, Philadelphia, Pa.
*Nov. 16, 1939	STELSON, HUGH E., Professor of Mathematics, Kent State University, Kent, Ohio.
*Nov. 16, 1923	STOKE, KENDRICK, Actuary, Michigan Mutual Liability Company, 163 Madison Avenue, Detroit, Mich.
*Nov. 21, 1930	SULLIVAN, WALTER F., State Compensation Insurance Fund, 450 McAllister Street, San Francisco, Calif. (V, I.)
Mar. 23, 1921	THOMPSON, ARTHUR E., Chief Statistician, Globe Indemnity Co., 150 William Street, New York.
*Nov. 21, 1919	TRENCH, FREDERICK H., Manager, Underwriting Department, Utica Mutual Insurance Co., 185 Genesee Street, Utica, N. Y. (V, I.)
*Nov. 20, 1924	UHL, M. ELIZABETH, National Bureau of Casualty & Surety Underwriters, 60 John Street, New York. (V, I.)
May 23, 1919	WARREN, CHARLES S., Secretary, Massachusetts Automobile Rating and Accident Prevention Bureau, 89 Broad Street, Boston, Mass.
Nov. 18, 1925	WASHBURN, JAMES H., Actuary, 1501 Gale Lane, Nashville, Tenn.

ASSOCIATES

Date Enrolled	
*Nov. 18, 1932	Weinstein, Max S., Examiner, New York Insurance Department, 61 Broadway, New York.
*Nov. 18, 1921	Welch, Eugene R., Associated Indemnity Corporation, 332 Pine Street, San Francisco, Calif.
*Nov. 18, 1925	Wellman, Alexander C., Vice-President and Actuary, Protective Life Insurance Co., Birmingham, Ala.
*Nov. 21, 1930	Wells, Walter I., Supervisor of Applications, Massachusetts Protective Association, Worcester, Mass. (V, I.)
Mar. 21, 1929	Wheeler, Charles A., Chief Examiner of Casualty Companies, New York Insurance Department, 61 Broadway, New York.
*Nov. 18, 1927	Whitbread, Frank G., Assistant Actuary, Great West Life Assurance Co., Winnipeg, Manitoba, Canada.
*Nov. 16, 1939	Wittlake, J. Clarke, Actuarial Department, Business Men's Assurance Company, Kansas City, Mo.
*Oct. 22, 1915	Wood, Donald M., Childs & Wood, General Agents, Royal Indemnity Company, 175 W. Jackson Blvd., Chicago, Ill.
*Nov. 18, 1937	Wood, Donald M., Jr., Childs & Wood, 175 West Jackson Blvd., Chicago, Ill.
*Nov. 18, 1927	Wood, Milton J., Assistant Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Oct. 22, 1915	Woodman, Charles E., Assistant Manager, Ocean Accident & Guarantee Corporation and Comptroller, Columbia Casualty Co., 1 Park Avenue, New York.
*Nov. 22, 1934	Woodward, Barbara H., Examiner, New York Insurance Department, 61 Broadway, New York.
*Nov. 18, 1925	Woolery, James M., Actuary, North Carolina Insurance Dept., Raleigh, N. C.

SCHEDULE OF MEMBERSHIP, NOVEMBER 15, 1941

	Fellows	Associates	Total
Membership, November 15, 1940..........	175	130	305
Additions:			
By election..........................	1		1
By reinstatement......................	1		1
By examination......................	3	2	5
	180	132	312
Deductions:			
By death............................	6	1	7
By withdrawal........................	1	..	1
By transfer from Associate to Fellow.....	..	4	4
Membership, November 15, 1941..........	173	127	300

OFFICERS OF THE SOCIETY

Since Date of Organization

Elected	*President*	*Vice-Presidents*	
1914–1915	*I. M. Rubinow	A. H. Mowbray	B. D. Flynn
1916–1917	*J. D. Craig	*J. H. Woodward	*H. E. Ryan
1918	*J. H. Woodward	B. D. Flynn	G. D. Moore
1919	B. D. Flynn	G. D. Moore	W. Leslie
1920	A. H. Mowbray	W. Leslie	*L. S. Senior
1921	A. H. Mowbray	*L. S. Senior	*H. E. Ryan
1922	*H. E. Ryan	G. F. Michelbacher	E. E. Cammack
1923	W. Leslie	G. F. Michelbacher	E. E. Cammack
1924–1925	G. F. Michelbacher	S. B. Perkins	R. H. Blanchard
1926–1927	S. B. Perkins	G. D. Moore	T. F. Tarbell
1928–1929	G. D. Moore	S. D. Pinney	P. Dorweiler
1930–1931	T. F. Tarbell	*R. A. Wheeler	W. W. Greene
1932–1933	P. Dorweiler	W. F. Roeber	*L. S. Senior
1934–1935	W. W. Greene	R. H. Blanchard	C. J. Haugh
1936–1937	*L. S. Senior	S. D. Pinney	F. S. Perryman
1938–1939	F. S. Perryman	H. T. Barber	W. J. Constable
1940	S. D. Pinney	H. J. Ginsburgh	J. M. Cahill
1941	R. H. Blanchard	H. J. Ginsburgh	J. M. Cahill

Secretary-Treasurer

1914–1917	*C. E. Scattergood
1918–1941	R. Fondiller

Editor†

1914	W. W. Greene
1915–1917	R. Fondiller
1918	W. W. Greene
1919–1921	G. F. Michelbacher
1922–1923	O. E. Outwater
1924–1932	R. J. McManus
1933–1941	C. W. Hobbs

Librarian†

1914	W. W. Greene
1915	R. Fondiller
1916–1921	L. I. Dublin
1922–1924	E. R. Hardy
1925–1937	W. Breiby
1937–1941	T. O. Carlson

*Deceased.

†The offices of Editor and Librarian were not separated until 1916.

DECEASED FELLOWS

Date of Death	
Nov. 12, 1941	Bond, Edward J., President, Maryland Casualty Company, Baltimore, Md.
Nov. 10, 1939	Bradshaw, Thomas, President, North American Life Assurance Company, Toronto, Canada.
Aug. 22, 1937	Brosmith, William, Vice-President and General Counsel, The Travelers Insurance Company and The Travelers Indemnity Company, Hartford, Conn.
June 4, 1934	Budlong, William A., Superintendent of Claims, Commercial Travelers Mutual Accident Association, Utica, N. Y.
Mar. 30, 1935	Burns, F. Highland, Chairman of the Board, Maryland Casualty Co., Baltimore, Md.
Feb. 4, 1920	Case, Gordon, Office of F. J. Haight, Consulting Actuary, Indianapolis, Ind.
July 23, 1921	Conway, Charles T., Vice-President, Liberty Mutual Insurance Co., Boston, Mass.
May 27, 1940	Craig, James D., Vice-President, Metropolitan Life Insurance Co., New York.
Jan. 20, 1922	Craig, James McIntosh, Actuary, Metropolitan Life Insurance Co., New York.
Sept. 2, 1921	Crum, Frederick S., Assistant Statistician, Prudential Insurance Co., Newark, N. J.
June 21, 1931	Dawson, Alfred Burnett, Consulting Actuary, New York.
Jan. 18, 1929	Deutschberger, Samuel, Actuary, New York Insurance Department, New York.
July 9, 1922	Downey, Ezekiel Hinton, Compensation Actuary, Pennsylvania Insurance Department, Harrisburg, Pa.
Oct. 30, 1924	Fackler, David Parks, Consulting Actuary, New York.
July 15, 1938	Fellows, Claude W., President, Associated Indemnity Co., San Francisco, Calif.
July 25, 1931	Frankel, Lee K., Second Vice-President, Metropolitan Life Insurance Co., New York.
Sept. 28. 1940	Froggatt, Joseph, President, Joseph Froggatt & Co., New York.
Aug. 22, 1925	Gaty, Theodore E., Vice-President and Secretary, Fidelity & Casualty Co., New York.
July 15, 1941	Glover, James W., Professor of Mathematics, University of Michigan, Ann Arbor, Mich.
April 15, 1937	Graham, George, Executive Vice-President, Manhattan Life Insurance Company, New York.
Oct. 28, 1936	Gould, William H., Consulting Actuary, New York.
May 17, 1940	Hillas, Robert J., President, Fidelity & Casualty Co., New York.
Mar. 18, 1932	Hinsdale, Frank Webster, Secretary, Workmen's Compensation Board, Vancouver, B. C., Canada.
Jan. 22, 1937	Hodges, Charles E., Chairman of the Board, American Mutual Liability Insurance Company, Boston, Mass.
Mar. 10, 1924	Hookstadt, Carl, Expert, U. S. Bureau of Labor Statistics, Washington, D. C.
Feb. 11, 1928	Kearney, Thomas P., Manager, State Compensation Insurance Fund, Denver, Col.
Oct. 15, 1918	Kime, Virgil Morrison, Actuary, Casualty Departments, The Travelers Insurance Co., Hartford, Conn.
Aug. 3, 1933	Kopf, Edwin W., Assistant Statistician, Metropolitan Life Insurance Co., New York.
Dec. 9, 1927	Landis, Abb, Consulting Actuary, Nashville, Tenn.
Aug. 11, 1938	Little, James Fulton, Vice-President and Actuary, Prudential Life Insurance Company, Newark, N. J.
Jan. 13, 1941	Lunt, Edward C., Vice-President, Great American Indemnity Co., New York.

DECEASED FELLOWS—Continued

Date of Death	
Nov. 29, 1933	Mead, Franklin B., Vice-President, The Lincoln National Life Insurance Co., Fort Wayne, Ind.
Mar. 27, 1931	Meltzer, Marcus, Statistician, National Bureau of Casualty & Surety Underwriters, New York.
Jan. 18, 1936	Miller, David W., Garden City, Long Island, New York.
Feb. 9, 1941	Mitchell, James F., United States Manager, General Accident Fire and Life Assurance Corporation, Philadelphia, Pa.
June 8, 1937	Moir, Henry, Chairman of Finance Committee and Director, United States Life Insurance Company, NewYork.
Aug. 20, 1915	Montgomery, William J., State Actuary, Boston, Mass.
Dec. 19, 1929	Morris, Edward Bontecou, Actuary, Life Department, The Travelers Insurance Co., Hartford, Conn.
Apr. 21, 1940	Nicholas, Lewis A., Asst. Secretary, Fidelity and Casualty Co., New York.
Oct. 12, 1937	Otis, Stanley, Counsellor at Law, Manager, Otis Service, New York.
July 30, 1941	Page, Bertrand A., Vice-President, Travelers Insurance Company, Hartford, Conn.
Oct. 25, 1940	Perry, William Thomas, Manager, Ocean Accident and Guarantee Corporation, Ltd., London, England.
July 24, 1915	Phelps, Edward B., Editor, The American Underwriter, New York.
July 30, 1921	Reiter, Charles Grant, Assistant Actuary, Metropolitan Life Insurance Co., New York.
Mar. 21, 1938	Remington, Charles H., Pan American Casualty Company, Miami, Fla.
Sept. 1, 1936	Rubinow, Isaac M., Secretary, Independent Order of B'nai B'rith, Cincinnati, Ohio.
Nov. 2, 1930	Ryan, Harwood Eldridge, Consulting Actuary, New York.
Feb. 26, 1921	Saxton, Arthur F., Chief Examiner of Casualty Companies, New York Insurance Department, New York.
Feb. 3, 1940	Senior, Leon S., General Manager, Compensation Insurance Rating Board, New York.
June 22, 1938	Smith, Charles Gordon, Manager, New York State Fund, New York.
May 9, 1920	Stone, John T., President, Maryland Casualty Co., Baltimore, Md.
July 19, 1934	Sullivan, Robert J., Vice-President, The Travelers Insurance Co., and The Travelers Indemnity Co., Hartford, Conn.
May 25, 1935	Thompson, Walter H., Kemper Insurance Organization, Chicago, Illinois.
Feb. 25, 1933	Toja, Guido, Director General, Institute Nazionale Delle Assicurazioni, Rome, Italy.
May 8, 1935	Welch, Archibald A., President, Phoenix Mutual Life Insurance Co., Hartford, Conn.
Aug. 26, 1932	Wheeler, Roy A., Vice-President and Actuary, Liberty Mutual Insurance Co., Boston, Mass.
Dec. 31, 1927	Wolfe, S. Herbert, Consulting Actuary, New York.
May 15, 1928	Woodward, Joseph H., Consulting Actuary, New York.
Oct. 23, 1927	Young, William, Actuary, New York Life Insurance Co., New York.

DECEASED ASSOCIATES

Date of Death	
Feb. 10, 1920	Baxter, Don. A., Deputy Insurance Commissioner, Michigan Insurance Department, Lansing, Mich.
Mar. 8, 1931	Hall, Leslie Le Vant, Secretary-Treasurer, National Bureau of Casualty & Surety Underwriters, New York.
May 8, 1939	Jackson, Edward T., Statistician, General Accident Fire and Life Assurance Corporation, Philadelphia, Pennsylvania.
Dec. 20, 1920	Lubin, Harry, Assistant Actuary, State Industrial Commission, New York.
June 25, 1941	Speers, Alexander A., Secretary and Actuary, Michigan Life Insurance Company, Detroit, Mich.
May. 8, 1937	Voogt, Walter G., Treasurer and Director, Associated Indemnity Corporation and Associated Fire and Marine Insurance Company, San Francisco, Cal.
Feb. 23, 1937	Watson, James J., President and General Manager, Allied Underwriters Corporation, Dallas, Texas.
June 11, 1930	Wilkinson, Albert Edward, Actuary, Standard Accident Insurance Co., Detroit, Mich.

STUDENTS

This list includes candidates who have passed one or more parts of the Associateship Examinations during the last three years.

The numerals after each name indicate the parts of Associateship Examinations passed, according to the revised 1941 Syllabus.

ACKER, ROBERT D., 449 Seventy-third Street, Brooklyn, New York. (I, II, III.)

ALLEN, EDWARD S., National Bureau of Casualty and Surety Underwriters, 60 John Street, New York. (I, II, III.)

ANDALMAN, JOSEPH M., 703-A Colette Drive, Akron, Ohio. (I.)

ANDERSON, PHILIP D., John Hancock Mutual Life Insurance Company, 197 Clarendon St., Boston, Mass. (I, II, III, IV.)

BABCOCK, RICHARD T., Travelers Insurance Company, Hartford, Conn. (II.)

BAILEY, CLARK J., Supervisor, Vermont Highway Planning Survey, Montpelier, Vt. (I.)

BARNHART, LYLE H., Illinois Insurance Department, Capitol Bldg., Springfield, Ill. (I, II, III, IV.)

BARONOWITZ, ABRAHAM S., Income Tax Examiner, State Tax Department, State Office Bldg., Albany, N. Y. (II.)

BASH, JOHN K., Metropolitan Life Insurance Co., 1 Madison Ave., New York. (I, III.)

BEVAN, JOHN R., Underwriter, Liberty Mutual Insurance Company, 175 Berkeley St., Boston, Mass. (I, III.)

BILSBORROW, JOHN E., Benefit Association of Railway Employees, 901 Montrose Ave., Chicago, Ill. (I, III.)

BOIG, FLETCHER S., Employers Liability Assurance Corporation, 110 Milk Street, Boston, Mass. (I, II, III.)

CHAROUS, A. ARTHUR, Old Age Assistance Service of the Cook County Department of Public Welfare, 7300 University Ave., Chicago, Ill. (II, III.)

CHAUNER, MILTON F., Connecticut General Life Insurance Company, 55 Elm Street, Hartford, Conn. (I, II.)

CLARKE, JOHN W., Life Actuarial Department, Travelers Insurance Company, Hartford, Conn. (I, II, IV.)

CLEMENS, JOSEPH L., Student, University of Michigan, 540 Packard St., Ann Arbor, Mich. (III.)

COHEN, DAVID J., 1757 E. 7th Street, Brooklyn, N. Y. (II.)

CONRAD, FLORENCE, National Bureau of Casualty and Surety Underwriters, 60 John Street, New York. (II, III, IV.)

COPPLE, JAMES B., Student, University of Michigan, 435 Thompson St., Ann Arbor, Mich. (I, II, III.)

CROUSE, CHARLES W., Actuary, American Casualty Company, Reading, Pa. (I, V.)

DANSKY, MORRIS, Office of Wolfe, Corcoran & Linder, 116 John Street, New York. (I, II, III, IV.)

DI SALVATORE, PHILIP, Guardian Life Insurance Company, 50 Union Square, New York. (I, II, III, IV.)

DODGE, FRANK F., Massachusetts Protective Association, Worcester, Mass. (I, II, III, IV.)

DORFMAN, ROBERT, 1740 Euclid Street, Washington, D. C. (I, II, III, IV.)

DUNN, HAROLD C., Travelers Insurance Company, Colonial Trust Bldg., Reading, Pa. (I, IV.)

DUNN, HOWARD, Kemper Insurance Organization, 4750 Sheridan Road, Chicago, Ill. (I.)

STUDENTS

EIDE, K. ARNE, Metropolitan Life Insurance Company, One Madison Avenue, New York. (I, II, III.)

FARRELLY, PATRICK F., 994 St. John's Place, Brooklyn, New York. (I, IV.)

FELD, JESSE, Social Security Board, Washington, D. C. (I, II, IV.)

FELLERS, WILLIAM W., Prudential Insurance Company of America, Newark, New Jersey. (I, II, III, IV.)

FINKEL, DANIEL, 4117 Eighth Street, Washington, D. C. (I.)

FONDILLER, LEONARD J., 915 West End Avenue, New York. (I.)

GINGERY, S. W., Prudential Insurance Company of America, Newark, New Jersey. (I, II, III, IV.)

GOLI, AGNES, Student, State University of Iowa, Iowa City, Iowa. (I.)

GROSS, HERBERT L., 1646 North Franklin Street, Philadelphia, Pa. (II.)

GOUSS, HAROLD A., 712 So. 16th Street, Newark, N. J. (II.)

GREEN, M. BRENN, New York City Employees' Retirement System, Municipal Bldg., New York. (III.)

GREENE, FOSTER C., National Bureau of Casualty and Surety Underwriters, 60 John St., New York. (I, II, III.)

GREVILLE, THOMAS N. E., Associate Actuarial Mathematician, Bureau of the Census, Washington, D. C. (I, II, III, IV.)

GRODEN, GERALD D., Student, University of Buffalo, Buffalo, N. Y. (I, III.)

HARMATZ, BENJAMIN, 630 Water Street, New York. (I, II.)

HARNISH, IRENE G., Office of George B. Buck, 150 Nassau Street, New York. (I.)

HENNINGTON, HOWARD H., Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, II, IV.)

HETHERINGTON, NORRIS W., 2332 College Avenue, Berkeley, Cal. (III.)

HOLZINGER, ERNEST, Office of Wolfe, Corcoran & Linder, 116 John Street, New York. (I, III.)

HOROWITZ, MILTON, Actuarial Department, State Insurance Fund, 625 Madison Avenue, New York. (I, III.)

HOUSEMAN, RAYMOND, 144-25 33rd Avenue, Flushing, New York. (I, II, III.)

JONES, W. E., Kemper Insurance Organization, 4750 Sheridan Road, Chicago, Ill. (I.)

JONES, W. H., Michigan Mutual Liability Company, 163 Madison Ave., Detroit, Mich. (I.)

KALISH, DANIEL H., Compensation Insurance Rating Board, 125 Park Avenue, New York. (III.)

KNOWLER, LLOYD A., State University of Iowa, 212 Physics Bldg., Iowa City, Iowa. (I, II, IV.)

LANCASTER, EDWIN B., 338 West 84th Street, New York. (I, II, IV.)

LENGYEL, BELA A., Department of Mathematics, Rensselaer Polytechnic Institute, Troy, New York. (I, II, III.)

LESLIE, WILLIAM, JR., Chateaux Brittony, Scarsdale, N. Y. (III.)

LEWIS, JOHN H., Lumber Mutual Casualty Insurance Company of New York, 41 East 42nd St., New York. (I, III.)

LEWIS, LEONARD, Asst. Secretary & Actuary, Prudence Life Insurance Company, 407 South Dearborn St., Chicago, Ill. (I, II, III, IV.)

LITTLE, ROBERT H., Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, II, III, IV.)

LUFKIN, ROBERT W., Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass. (I, II, III.)

MARCUS, JOHN J., Student, State University of Iowa, Iowa City, Iowa. (I, II.)

STUDENTS

MARSHALL, EDWIN B., American Mutual Liability Insurance Company, 142 Berkeley Street, Boston, Mass. (III.)

MAYNARD, BURTON I., California-Western States Life Insurance Company, Sacramento, Cal. (I, II, III, IV.)

McMILLAN, OLAN T., 44 East Patterson Avenue, Columbus, Ohio. (I.)

MERRITT, ROBERT, Actuarial Department, Columbian National Life Insurance Company, 77 Franklin St., Boston, Mass. (I.)

MILES, JAMES R., Joseph Froggatt & Company, Inc., 74 Trinity Place ,New York, (I, III, IV.)

MORRIS, JOHN C., State Farm Life Insurance Company, Bloomington, Ill. (I, III.)

MUNTERICH, GEORGE C., National Council on Compensation Insurance, 45 East 17th St., New York. (I, II, III.)

NEMMERS, FREDERIC E., Student, State University of Iowa, Iowa City, Iowa. (I.)

NORBERG, EMIL T., Underwriter, Iowa Farm Mutual Insurance Company, Des Moines, Iowa. (I.)

NORDEN, MONROE L., Student, Massachusetts Institute of Technology, Cambridge, Mass. (I.)

OGUS, JACK, 180 Beach 41st Street, Far Rockaway, New York. (III.)

PAULL, ALLAN E., Student, University of Manitoba, Winnipeg, Manitoba, Canada. (I, II, III, IV.)

PEARLSON, JEANNE S., Student, Massachusetts Institute of Technology, Cambridge, Mass. (III.)

PERRY, ROBERT C., Asst. Actuary, State Farm Insurance Companies, Bloomington, Ill. (I, II.)

POIRIER, ROLLAND, 764 Bloomfield, P.Q., Canada. (I.)

POIRIER, ROLLAND, 764 Bloomfield, Outremont, P.Q., Canada. (I.)

PURINGTON, FRANK H., JR., 5 Malba Drive, Whitestone, New York. (II.)

QUIRK, HELEN R., Kemper Insurance Organization, 4750 Sheridan Road, Chicago, Ill. (I.)

RACKOFF, HERBERT C., 356 West 34th Street, New York. (I, II, III, IV.)

RICH, ROBERT F., Standard Accident Insurance Company, 640 Temple Avenue, Detroit, Mich. (III.)

ROSENBLOOM, IRVING, Actuarial Department, Massachusetts Insurance Department, 100 Nashua Street, Boston, Mass. (I, II, III, IV.)

ROSS, SAMUEL M., National Bureau of Casualty and Surety Underwriters, 60 John Street, New York. (I, III, V.)

ROWELL, JOHN H., Examiner, Pennsylvania Insurance Department, Keystone Bldg., Philadelphia, Pa. (III.)

SATTERTHWAITE, FRANKLIN E., Department of Mathematics, State University of Iowa, Iowa City, Iowa. (I, II, III, IV.)

SCHLOSS, HAROLD W., 1020 East 26th Street, Brooklyn, New York. (I, IV.)

SCHUCK, EDWIN G., National Council on Compensation Insurance, 45 East 17th Street, New York, N. Y. (I.)

SCHWARTZ, MAX J., New York State Insurance Department, State Office Bldg., Albany, N. Y. (I, II, III.)

SHEPARD, LYNN, Student, University of Michigan, Ann Arbor, Mich. (I, IV.)

SILLESKY, DARRISON, Life Actuarial Department, The Travelers Insurance Company, Hartford, Conn. (I, II.)

SMITH, ROBERT H., Student, State University of Iowa, Iowa City, Iowa. (I, II, III.)

STEIN, IRVING, Student, Massachusetts Institute of Technology, Cambridge, Mass. (III.)

STUDENTS

STRAND, IVAR E., Social Security Board, Washington, D. C. (I, III.)

STRUBLE, WILLIAM I., The Travelers Insurance Company, Hartford, Conn. (I, II, III.)

TEVLIN, DONALD J., Hartford Accident & Indemnity Company, Hartford, Conn. (I, III, IV.)

TILLINGHAST, JOHN P., Union Central Life Insurance Company, Cincinnati, Ohio (I, II, III, IV.)

TRACY, ELEANOR, Cornell University, Ithaca, New York. (I, III.)

TUCK, IRA N., 342 Irving Avenue, South Orange, New Jersey. (I, II, III.)

TURNER, PAUL A., Statistician, Eastman, Dillon & Company, 225 So. 15th St., Philadelphia, Pa. (I, IV.)

TYRRELL, MARGERY, Student, Currier Hall, University of Iowa, Iowa City, Iowa. (I.)

ULLMAN, JOSEPH, 397 Jefferson Avenue, Buffalo, New York. (I, II, III.)

VERGANO, ELLA, Compensation Insurance Rating Board, 125 Park Avenue, New York. (III.)

WAREHAM, RALPH E., General Electric Company, Schenectady, N. Y. (I, III.)

WEINFLASH, BERNARD, State Insurance Fund, 625 Madison Avenue, New York. (I, III.)

WEISS, LILIAN S., State Insurance Fund, 625 Madison Avenue, New York. (III.)

WILLIAMS, JOHN H., Office of George B. Buck, Consulting Actuary, 150 Nassau Street, New York. (I, III.)

CONSTITUTION

(AS AMENDED NOVEMBER 15, 1940)

ARTICLE I.—*Name.*

This organization shall be called the CASUALTY ACTUARIAL SOCIETY.

ARTICLE II.—*Object.*

The object of the Society shall be the promotion of actuarial and statistical science as applied to the problems of casualty and social insurance by means of personal intercourse, the presentation and discussion of appropriate papers, the collection of a library and such other means as may be found desirable.

The Society shall take no partisan attitude, by resolution or otherwise, upon any question relating to casualty or social insurance.

ARTICLE III.—*Membership.*

The membership of the Society shall be composed of two classes, Fellows and Associates. Fellows only shall be eligible to office or have the right to vote.

The Fellows of the Society shall be the present Fellows and those who may be duly admitted to Fellowship as hereinafter provided. The Associates shall be the present Associates and those who may be duly admitted to Associateship as hereinafter provided.

Any person may, upon nomination to the Council by two Fellows of the Society and approval by the Council of such nomination with not more than one negative vote, become enrolled as an Associate of the Society, provided that he shall pass such examination as the Council may prescribe. Such examination may be waived in the case of a candidate who for a period of not less than two years has been in responsible charge of the Statistical or Actuarial Department of a casualty insurance organization or has had such other practical experience in casualty or social insurance as, in the opinion of the Council, renders him qualified for Associateship.

Any person who shall have qualified for Associateship may become a Fellow on passing such final examination as the Council may prescribe. Otherwise, no one shall be admitted as a Fellow unless recommended by a duly called meeting of the Council, with not more than three negative votes, followed by a three-fourths ballot of the Fellows present and voting at a meeting of the Society.

ARTICLE IV.—*Officers and Council.*

The officers of the Society shall be a President, two Vice-Presidents, a Secretary-Treasurer, an Editor, and a Librarian. The Council shall be composed of the active officers, nine other Fellows and, during the four years following the expiration of their terms of office, the ex-Presidents and ex-Vice-Presidents. The Council shall fill vacancies occasioned by death or resignation of any officer or other member of the Council, such appointees to serve until the next annual meeting of the Society.

Article V.—*Election of Officers and Council.*

The President, Vice-Presidents, and the Secretary-Treasurer shall be elected by a majority ballot at the annual meeting for the term of one year and three members of the Council shall, in a similar manner, be annually elected to serve for three years. The President and Vice-Presidents shall not be eligible for the same office for more than two consecutive years nor shall any retiring member of the Council be eligible for re-election at the same meeting.

The Editor and the Librarian shall be elected annually by the Council at the Council meeting preceding the annual meeting of the Society. They shall be subject to confirmation by majority ballot of the Society at the annual meeting.

The terms of the officers shall begin at the close of the meeting at which they are elected except that the retiring Editor shall retain the powers and duties of office so long as may be necessary to complete the then current issue of *Proceedings.*

Article VI.—*Duties of Officers and Council.*

The duties of the officers shall be such as usually appertain to their respective offices or may be specified in the by-laws. The duties of the Council shall be to pass upon candidates for membership, to decide upon papers offered for reading at the meetings, to supervise the examination of candidates and prescribe fees therefor, to call meetings, and, in general, through the appointment of committees and otherwise, to manage the affairs of the Society.

Article VII.—*Meetings.*

There shall be an annual meeting of the Society on such date in the month of November as may be fixed by the Council in each year, but other meetings may be called by the Council from time to time and shall be called by the President at any time upon the written request of ten Fellows. At least two weeks' notice of all meetings shall be given by the Secretary.

Article VIII.—*Quorum.*

Seven members of the Council shall constitute a quorum. Twenty Fellows of the Society shall constitute a quorum.

Article IX.—*Expulsion or Suspension of Members.*

Except for non-payment of dues no member of the Society shall be expelled or suspended save upon action by the Council with not more than three negative votes followed by a three-fourths ballot of the Fellows present and voting at a meeting of the Society.

Article X.—*Amendments.*

This constitution may be amended by an affirmative vote of two-thirds of the Fellows present at any meeting held at least one month after notice of such proposed amendment shall have been sent to each Fellow by the Secretary.

BY-LAWS

(As Amended November 13, 1936)

Article I.—*Order of Business.*

At a meeting of the Society the following order of business shall be observed unless the Society votes otherwise for the time being:

1. Calling of the roll.
2. Address or remarks by the President.
3. Minutes of the last meeting.
4. Report by the Council on business transacted by it since the last meeting of the Society.
5. New membership.
6. Reports of officers and committees.
7. Election of officers and Council (at annual meetings only).
8. Unfinished business.
9. New business.
10. Reading of papers.
11. Discussion of papers.

Article II.—*Council Meetings.*

Meetings of the Council shall be called whenever the President or three members of the Council so request, but not without sending notice to each member of the Council seven or more days before the time appointed. Such notice shall state the objects intended to be brought before the meeting, and should other matter be passed upon, any member of the Council shall have the right to re-open the question at the next meeting.

Article III.—*Duties of Officers.*

The President, or, in his absence, one of the Vice-Presidents, shall preside at meetings of the Society and of the Council. At the Society meetings the presiding officer shall vote only in case of a tie, but at the Council meetings he may vote in all cases.

The Secretary-Treasurer shall keep a full and accurate record of the proceedings at the meetings of the Society and of the Council, send out calls for the said meetings, and, with the approval of the President and Council, carry on the correspondence of the Society. Subject to the direction of the Council, he shall have immediate charge of the office and archives of the Society.

The Secretary-Treasurer shall also send out calls for annual dues and acknowledge receipt of same; pay all bills approved by the President for expenditures authorized by the Council of the Society; keep a detailed account of all receipts and expenditures, and present an abstract of the same at the annual meetings, after it has been audited by a committee of the Council.

The Editor shall, under the general supervision of the Council, have charge of all matters connected with editing and printing the Society's publications. The *Proceedings* shall contain only the proceedings of the meetings, original papers or reviews written by members, discussions on said papers and other matter expressly authorized by the Council.

The Librarian shall, under the general supervision of the Council, have charge of the books, pamphlets, manuscripts and other literary or scientific material collected by the Society.

ARTICLE IV.—*Dues.*

The dues shall be ten dollars for Fellows payable upon entrance and at each annual meeting thereafter, except in the case of Fellows not residing in the United States, Canada, or Mexico, who shall pay five dollars at the time stated. The dues shall be five dollars for Associates payable upon entrance and each annual meeting thereafter until five such payments in all shall have been made; beginning with the sixth annual meeting after the admission of an Associate as such the dues of any Associate heretofore or hereafter admitted shall be the same as those of a Fellow. The payment of dues will be waived in the case of Fellows or Associates who have attained the age of seventy years or who, having been members for a period of at least twenty years, shall have attained the age of sixty-five years.

It shall be the duty of the Secretary-Treasurer to notify by mail any Fellow or Associate whose dues may be six months in arrears, and to accompany such notice by a copy of this article. If such Fellow or Associate shall fail to pay his dues within three months from the date of mailing such notice, his name shall be stricken from the rolls, and he shall thereupon cease to be a Fellow or Associate of the Society. He may, however, be reinstated by vote of the Council, and upon payment of arrears of dues.

ARTICLE V.—*Designation by Initials.*

Fellows of the Society are authorized to append to their names the initials F. C. A. S.; and Associates are authorized to append to their names the initials A. C. A. S.

ARTICLE VI.—*Amendments.*

These by-laws may be amended by an affirmative vote of two-thirds of the Fellows present at any meeting held at least one month after notice of the proposed amendment shall have been sent to each Fellow by the Secretary.

EXAMINATION REQUIREMENTS

SYLLABUS OF EXAMINATIONS

Effective 1941 and thereafter

ASSOCIATESHIP

Part	*Sections*	*Subjects*
I	1	Algebra.
	2	Compound Interest and Annuities Certain.
II	3	Differential and Integral Calculus.
	4	Calculus of Finite Differences.
III	5	Descriptive and Analytical Statistics.
	6	Elements of Accounting, Including Corporate Accounting.
IV	7	Probabilities.
	8	Life Contingencies, Life Annuities and Life Assurances.
V	9	Policy Forms and Underwriting Practice in Casualty Insurance.
	10	Casualty Insurance Rate Making Procedure.

FELLOWSHIP

I	11	Investments of Insurance Companies.
	12	Insurance Law and Legislation.
	13	Insurance Economics.
II	14	Determination of Premium, Loss and Expense Reserves.
	15	Advanced Problems in Casualty Insurance Statistics.
	16	Advanced Problems in Casualty Insurance Accounting,
III	17	Individual Risk Rating.
	18	Social Insurance.
	19	Advanced Problems in the Underwriting and Administration of Casualty Insurance.

RULES REGARDING EXAMINATIONS FOR ADMISSION TO THE SOCIETY

1. Dates of Examination.

Examinations will be held on the first Wednesday and following Thursday during the month of April in each year, except that if such dates are in the week preceding Easter, the examinations will be held on the second Wednesday and following Thursday of April. The examinations will be held in such cities as will be convenient for three or more candidates.

2. Filing of Application.

Application for admission to examination should be made on the Society's blank form, which may be obtained from the Secretary-Treasurer. No applications will be considered unless received before the fifteenth day of January preceding the dates of examination. Applications should definitely state for what parts the candidate will appear.

3. Fees.

The examination fee is $2.00 for each part, with a minimum of $5.00 for each year in which the candidate presents himself; thus for one or two parts, $5.00, for three parts, $6.00, etc. Examination fees are payable to the order of the Society and must be received by the Secretary-Treasurer before the fifteenth day of January preceding the dates of examination.

4. Associateship and Fellowship Examinations.

(a) The examination for Associateship consists of five parts and that for Fellowship consists of three parts. A candidate may take any one or more of the five parts of the Associateship Examination. No candidate will be permitted to present himself for any part of the Fellowship Examination unless he has previously passed, or shall concurrently present himself for and submit papers for, all parts of the Associateship Examination and all preceding parts of the Fellowship Examination. Subject to the foregoing requirement, the candidate will be given credit for any part or parts of either examination which he may pass.

(b) A candidate who has passed Associateship Parts I-IV prior to 1941, but who has not been enrolled as an Associate because of lack of the experience qualifications required by the examination rules effective prior to 1941, will be enrolled as an Associate upon passing Part V. Such a candidate may also take Fellowship Examination Parts I-III in the same year as Associateship Part V, subject to the provisions of paragraph (a) above.

(c) An Associate who has passed no part of the Fellowship Examination under the Syllabus effective prior to 1941 is required, in order to qualify for admission as a Fellow, to pass Associateship Examination Part V and Fellowship Examination Parts I-III.

(d) A candidate who has passed one or more parts of the Associateship or Fellowship Examinations under the Syllabus effective prior to 1941 will receive credit for the corresponding parts of the new Syllabus in accordance with the following table:

Parts Passed Under		*Parts Credited Under*	
Old Syllabus		*New Syllabus*	
(Effective Prior to 1941)		(Effective in 1941)	
Associateship,	Part I	Associateship,	Part I
"	" II	"	" III
"	" III	"	" II
"	" IV	"	" IV
Fellowship,	Part I	"	" V
"	" II	Fellowship,	Part I
"	Parts III & IV	"	Parts II & III

Other combinations of Fellowship parts passed under the old Syllabus will receive special attention by the Educational Committee to determine the credit allowable and the further examinations required to obtain full credit for all Fellowship parts under the new Syllabus.

5. **Alternative to Passing of Fellowship Parts II and III.**

As an alternative to the passing of Parts II and III of the Fellowship Examination, a candidate may elect to present an original thesis on an approved subject relating to casualty or social insurance. Such thesis must show evidence of ability for original research and the solution of advanced problems in casualty insurance comparable with that required to pass Parts II and III of the Fellowship Examination, and shall not consist solely of data of an historical nature. Candidates electing this alternative should communicate with the Secretary-Treasurer and obtain through him approval by the Examination Committee of the subject of the thesis. In communicating with the Secretary-Treasurer, the candidate should state, in addition to the subject of the thesis, the main divisions of the subject and general method of treatment, the approximate number of words and the approximate proportion to be devoted to data of an historical nature. All theses must be in the hands of the Secretary-Treasurer before the first Wednesday in April of the year in which they are to be considered. Where Part I of the Fellowship Examination is not taken during the same year, no examination fee will be required in connection with the presentation of a thesis. All theses submitted are, if accepted, to be the property of the Society and may, with the approval of the Council, be printed in the *Proceedings.*

6. Waiver of Examinations for Associate.

The examinations for Associate will be waived under Article III of the Constitution only in case of those candidates who meet the following qualifications and requirements:

(a) The candidate shall be at least thirty-five years of age.

(b) The candidate shall have had at least ten years' experience in casualty actuarial or statistical work or in a phase of casualty insurance which requires a working knowledge of actuarial or statistical procedure or in the teaching of casualty insurance principles in colleges or universities. Experience limited exclusively to the field of accident and health insurance shall not be admissible.

(c) For the two years preceding date of application, the candidate shall have been in responsible charge of the actuarial or statistical department of a casualty insurance organization or of an important division of such department or shall have occupied an executive position in connection with the phase of casualty work in which he is engaged, or, if engaged in teaching, shall have attained the status of a professor.

(d) The candidate shall have submitted a thesis approved by the Examination Committee. Such thesis must show evidence of original research and knowledge of casualty insurance and shall not consist solely of data of an historical nature. Candidates electing this alternative should communicate with the Secretary-Treasurer and obtain through him approval by the Examination Committee of the subject of the thesis. In communicating with the Secretary-Treasurer, the candidate should state, in addition to the subject of the thesis, the main divisions of the subject and general method of treatment, the approximate number of words and the approximate proportion to be devoted to data of an historical nature.

RECOMMENDATIONS FOR STUDY

To assist students in preparation for the examinations, Recommendations For Study have been prepared. This lists the texts, readings and technical material which must be mastered by the candidates. Textbooks are loaned to registered students by the Society. By "registered students" is meant candidates who have signified their willingness to take the examinations by the payment of their examination fees.

LIBRARY

The Society's library contains all of the references listed in the Recommendations for Study with the exception of certain periodicals and publications subject to periodical revision. It also contains numerous other works on casualty actuarial matters. Registered students may have access to the library by receiving from the Society's Secretary the necessary credentials. Books may be withdrawn from the library for a period of two weeks upon payment of a small service fee and necessary postage.

The library is in the immediate charge of Miss Mabel B. Swerig, Librarian of the Insurance Society of New York, 107 William Street, New York City.

1941 EXAMINATIONS OF THE SOCIETY

MAY 21 AND 22, 1941

EXAMINATION COMMITTEE

RUSSELL P. GODDARD - - - GENERAL CHAIRMAN

IN CHARGE OF
ASSOCIATESHIP EXAMINATIONS
PARTS I TO IV

MATTHEW H. McCONNELL, CHAIRMAN
JOHN A. MILLS
SEYMOUR E. SMITH

IN CHARGE OF
FELLOWSHIP EXAMINATIONS
AND ASSOCIATESHIP EXAMINATION PART V

ROBERT V. SINNOTT, CHAIRMAN
HARRY V. WILLIAMS
ARTHUR E. CLEARY

EXAMINATION FOR ADMISSION AS ASSOCIATE

PART I

1. (a) Solve the following equations:

$$x + \sqrt{xy} + y = 65$$

$$x^2 + xy + y^2 = 2275.$$

(b) Solve the equation:

$$\frac{\sqrt{x+1} + \sqrt{x-1}}{\sqrt{x+1} - \sqrt{x-1}} = \frac{4x-1}{2}$$

2. (a) Sum the following series to infinity:

$$2 + 3 + \frac{5}{2} + \frac{7}{4} + \frac{9}{8} + \cdots\cdots$$

(b) The sum of an arithmetic progression is equal to $n(5n - 3)$. Find the p^{th} term of the series.

(c) Find four proportionals such that the sum of the extremes is 21, the sum of the means is 19, and the sum of the squares of all four is 442.

3. (a) If a_1, a_2, a_3, and a_4 are any four consecutive coefficients of an expanded binomial, prove that

$$\frac{a_1}{a_1 + a_2} + \frac{a_3}{a_3 + a_4} = \frac{2a_2}{a_2 + a_3}$$

(b) In the expansion of $(1 + 3x)^{16}$ what is the greatest term if $x = \frac{1}{2}$?

4. (a) How many numbers less than 10,000 but greater than 100 can be made with the eight digits 1, 2, 3, 4, 5, 6, 7, 0 if each digit may be used any number of times?

   (b) How many combinations of four letters each can be made from the word "independence"?

5. (a) The United States Government now offers "Baby Bonds" to mature in 10 years. The purchase price of a bond with a maturity value of $25.00 is $18.75. What is the rate of interest?

$$\text{Given}\quad \begin{aligned} \log 2 &= .301030 \\ \log 3 &= .477121 \\ \log 9.7164 &= .987506. \end{aligned}$$

   (b) An injured workman received a compensation award of $8.00 a week for 260 weeks. Calculate the present value of the last 60 weeks of the award. Assume 52 weeks to the year.

$$\text{Given}\quad v^{\frac{1}{52}} = .999339 \qquad v^{3} = .901943$$
$$v^{\frac{44}{52}} = .971311 \qquad v^{5} = .841973$$

6. (a) Given $K = R\,s_{\overline{n|}}$, $A = R\,a_{\overline{n|}}$, prove that $i = \dfrac{R\,(K - A)}{KA}$

   (b) A house for sale is listed at $10,500. A prospective purchaser offers to pay 20% down and $100 a month for seven years, the monthly payments to be at the end of each month. If this offer is accepted what reduction, if any, has been made in the price of the house, assuming money to be worth 5% effective.

$$\text{Given}\quad a_{\overline{7|}} = 5.78637 \text{ at } 5\%$$
$$s^{(12)}_{\overline{1|}} = 1.02271.$$

7. (a) Show how you would calculate $a_{\overline{n+m|}}$ having given

$$a_{\overline{n|}},\ a_{\overline{m|}},\ \text{and } v^{m}.$$

   (b) An annuity pays 10 at the end of the first year, 11 at the end of the second year and increases by one each year, reaching a final payment of 25 at the end of the 16th year. Calculate the present value of the annuity at 4% interest.

$$\text{Given}\quad a_{\overline{16|}} = 11.65230 \qquad v^{16} = .53391.$$

8. An insurance company bought a \$10,000 bond paying dividends at the rate of 7 per cent payable semi-annually at a price to yield the company 6 per cent payable semi-annually. The bond is to be redeemed at par four years from date of purchase. Find the purchase price and show by an amortization schedule the progress of the funds until the date of redemption.

Given v^8 at $3\% = .789409$.

PART II

1. (a) Differentiate the following:

$$f(x) = \log \frac{\sqrt{x^2+1}-x}{\sqrt{x^2+1}+x}.$$

(b) If $y = \dfrac{x^2\sqrt{x^2-12}}{\sqrt[3]{20-3x}}$.

Find the value of $\dfrac{dy}{dx}$ when $x = 4$.

2. (a) Evaluate $\displaystyle\int \frac{-dx}{x\sqrt{1+4x+5x^2}}$.

(b) Evaluate $\displaystyle\int \frac{6x^2+3x-15}{(x-1)(x+1)(x+2)}\,dx$.

3. (a) Evaluate: $\displaystyle\lim_{x \to 0} \frac{e^x-1-x}{\cos 2x - 1}$.

(b) A window is in the form of a rectangle surmounted by an isosceles triangle, the altitude of which is equal to ⅜ of its base. If the perimeter of the window is 30 feet, what dimensions of the rectangle will admit the greatest light through the window?

4. (a) Find the area bounded by the

catenary $y = \dfrac{a}{2}\left(e^{\frac{x}{a}} + e^{\frac{-x}{a}}\right)$, the Y axis, the X axis, and the line $x = a$.

(b) Expand $\sqrt{x}$ in powers of $x - 1$.

5. (a) Find the fifteenth term of the series 1, 4, 13, 36, 81, 156 . . . . .

   (b) Given the following values

x	u_x
5	23.675
10	196.675
15	669.175
20	1591.175

   Find u_x for unit intervals from 5 to 10.

6. Given the following premiums at age 40 for different interest rates

Rate	P_{40}
3 %	.025891
3½	.024654
4	.023517
4½	.022470
5	.021509
6	.019811

   Find P_{40} at 5½ per cent, using (a) four of the above values (b) six of the above values.

7. Find u_{53} by divided differences, having given

$$u_{50} = 1.6990;$$
$$u_{52} = 1.7160;$$
$$u_{54} = 1.7324;$$
$$u_{55} = 1.7404.$$

8. Sum to n terms the series 1, 6, 11, 18, 31, 58, 115.

PART III

1. (a) Given the following data, compute the average deviation and the standard deviation

Bushels Per Acre	*Number of Farms*
20	2
25	5
30	7
35	5
40	1

(b) Where $f\,(x)$ is the frequency of X and M_x is the mean, show that

$$\sigma_x = \sqrt{\frac{\Sigma\, X^2 f(x)}{n} - M_x{}^2}.$$

2. By the method of least squares fit (a) a straight line, and (b) a second-degree parabola, to the following data:

X	1	2	3	4	5	6
Y	7	9	13	10	6	8

3. Compute the coefficient of correlation from the following data based on the speed of automobiles and the average cost per accident in hundreds of dollars

Speed	5	15	25	35	45	55	65	75
Cost	6	8	10	14	20	26	50	58

4. Determine r_{xy} for the following data:

X	3	7	9	14	22	28
Y	7	12	18	21	23	25

5. (a) Make the necessary journal entries to record the following transactions:

Jan. 10, 1941 Sales of $150 to J. A. Smith on account
Cash sales of $570
Payment of $125 in wages
Payment of $25 for advertising
Purchase of $300 worth of goods on account from R. L. Jones.

(b) Distinguish between the depreciation account and the depreciation reserve account.

(c) Define the Sales Journal and explain its effect on the General Journal.

6. (a) Explain briefly the method and purpose of taking the Trial Balance.

(b) Perkins bought merchandise on account for $175. Robbins bought merchandise from Jackson on account for $125. Robbins writes out a draft for $125 on Perkins with Jackson as payee. Upon acceptance of the draft by Perkins, what journal entries are made on the books of each of the three parties? It is a 60 day draft payable November 10.

7. (a) Following are the balances of the general ledger of the X Insurance Company as of December 31, 1940. Prepare a trial balance. You may abbreviate the accounts in order to conserve time.

Real Estate	$ 400,000
Interest Income	100,000
Reinsurance recoveries on losses paid	300,000
Taxes paid	100,000
Return premiums	400,000
Gross losses paid	2,000,000
Premiums in course of collection	300,000
General administration expenses	1,060,000
Stocks and bonds	3,700,000
Cash	1,000,000
Written Premiums	4,900,000
Reinsurance premiums ceded	500,000
Claim expenses paid	500,000
Profit on sale of assets	20,000
Dividends paid to stockholders	20,000
Capital stock	200,000
Reserve for unpaid losses 12/31/39	2,000,000
Res. for unpaid loss exp. 12/31/39	100,000
Res. for unearned prems. 12/31/39	1,000,000
Res. for unpaid admin. exp. 12/31/39	100,000
Res. for unpaid taxes 12/31/39	80,000
Accrued interest 12/31/39	20,000
Surplus 12/31/39	1,200,000

7. (b) Make adjustments for the following in the case of the X Insurance Company

	Incr. over 12/31/39
Res. for unpaid losses 12/31/40	$200,000
Res. for unpaid loss exp. 12/31/40	20,000
Res. for unearned prems. 12/31/40	230,000
Res. for unpaid admin. exp. 12/31/40	25,000
Res. for unpaid taxes 12/31/40	20,000
Accrued interest 12/31/40	5,000

8. Prepare a profit and loss statement and a balance sheet for the X Insurance Company.

PART IV

1. (a) In a single throw with four dice, what is the chance of throwing two doublets?

   (b) If the odds on every game between two players are two to one in favor of the winner of the preceding game, what is the chance that the winner of the first game will win at least two out of the next three?

2. (a) The face of a die, which should have been marked ace, has been accidentally marked with one of the other five numbers. A six is thrown twice in two throws. What is the chance that the third throw will give a six?

   (b) In a purse are ten coins, of which nine are dimes and one is a penny; in another are ten coins, all of which are dimes. Nine coins at random are transferred from the first purse to the second and then nine coins are transferred from the second purse to the first. What is the chance that the first purse now contains ten dimes?

3. (a) A die is to be thrown once by each of four persons, in order, and the first one of them who throws an ace is to receive a prize. Find their respective chances, and the chance that the prize will not be won at all.

(b) If an event occurs on an average three times out of four trials, find the chance that in four trials it will occur exactly three times.

4. (a) A merchant sells articles at all prices from $.01 to $1.00. He opens for business with the following change:

3 pennies
3 nickels
3 quarters

His first customer has a dollar bill and a dime. He wishes to buy a single article and make a 5¢ phone call from the coin telephone in the store. What is the probability that this can be accomplished and correct change made, assuming that all articles are equally likely to be selected by the customer?

(b) If the customer had not had a dime, how would the probability have been affected?

5. (a) What is the present value to a person aged 35 of an annuity of $1.00 a year, payable for 10 years, the first payment to be made 10 years hence?

(Use values given with problem 8)

(b) A 35 year old employee is permanently incapacitated due to an accident and is awarded a pension of $15.00 a week for the first ten years and $10.00 a week for life thereafter. Determine the present value of the award.

(Use values given with problem 8)

6. (a) Express $a_{\overline{xyz}}$ in terms of pure annuities.

(b) Given $a_{30\,\overline{4|}} = 3.69556$ $a_{31\,\overline{3|}} = 2.82641$

$a_{30\,\overline{5|}} = 4.53005$ $a_{31\,\overline{4|}} = 3.69508$

$a_{31\,\overline{5|}} = 4.52928$

Calculate $a_{30\,\overline{6|}}$

(c) Assume that you have a table of whole life annuities at 3½%, but that the commutation columns underlying this table are not available. Explain how you could prepare a table of whole life annuities at 3%.

7. (a) A policyholder has a $5,000 twenty year endowment maturing at age 45. On maturity he is given the option of applying a sufficient amount of the payment to buy $5,000 of single premium whole life insurance with the remainder payable in cash. How much cash would he receive? (Use values given with problem 8).

(b) An insurance policy issued at age 25 provides for the payment of $10,000 in the event of death of the insured prior to attaining the age of 65. It further provides that if the insured be living at age 65 he shall receive a life income of $500 a year, the first payment to be made on the anniversary of the policy at his attained age of 65. If premiums are payable to age 65, indicate the net annual premium in terms of commutation symbols.

8. Compute the tenth terminal reserve by either the retrospective or the prospective method for a $1,000 twenty payment endowment insurance maturing at age 65, the policy having been issued at age 35. Given:

X	D_x	N_x	M_x
35	24,545	456,871	9,095
36	23,503	432,326	8,883
45	15,774	253,746	7,193
55	9,733	124,876	5,511
65	5,273	48,616	3,629

PART V

1. (a) If an automobile belonging to a customer falls from a greasing rack, damaging itself and injuring a bystander on the premises, to what extent is the liability of the garage covered under the Standard Garage Bodily Injury and Property Damage Liability Policy?

(b) Outline the obligations of the employer contemplated in Coverage I and Coverage II for maritime risks as given in the Compensation manual.

2. (a) Assume Plate Glass insurance is written under the "50-50" plan. The annual full coverage premium is $50. The insured suffers one loss amounting to $15 and another amounting to $20. For how much is the company liable?

   (b) What exclusion commonly found in Property Damage Liability Contracts is omitted from Elevator Property Damage coverage?

3. (a) Describe two ways in which trucks which are used exclusively on the premises of an insured may be covered for Liability for Bodily Injury.

   (b) To what extent, if at all, does the Residence Liability Policy, without special endorsement, cover the liability of an insured for Bodily Injury caused by his dog?

4. (a) Outline the co-insurance requirements under a Mercantile Open Stock Policy.

   (b) Distinguish between the terms "principal sum" and "capital sum" as used in accident insurance.

5. Outline the advantages and disadvantages of each of the following as a basis for determining the credibility of actual experience in the calculation of Formula pure premiums for an individual classification.

   1. Number of claims.
   2. Amount of actual losses.
   3. Amount of expected losses.

   Indicate your choice of the most reliable basis and give reasons for your selection.

6. In what manner are catastrophe premium and catastrophe losses included in the calculation of the contingency factor of the Compensation rate level calculation? Do you think this procedure is correct? Give reasons for your conclusion.

7. (a) If the actual experience develops a loss ratio 10% higher than that underlying the existing Elevator Bodily Injury rate, would you advocate increasing the rate by 10%? Explain.

   (b) How is allocated claim expense treated in the rate-making procedure for the Public Liability lines?

8. (a) What purpose does the Earned Factor serve in the automobile rate-making calculation?

   (b) When loss and expense constants were introduced in the Compensation rate structure, it was stated that these constants would not affect the premium level. What adjustments are made to accomplish this?

EXAMINATION FOR ADMISSION AS FELLOW

PART I

1. Outline briefly the provisions of the New York Insurance Law which deal with the regulation of rates for Casualty Insurance.

2. (a) Define and give examples of the following as they operate in the insurance business:

   (a) Waiver
   (b) Estoppel

   (b) The insurer assigned an improper classification and rate to certain operations covered under a Workmen's Compensation policy in New York. Seven months after the inception date of the policy, the rating authorities ordered an endorsement attached, effective retroactively to the inception date, and providing for the use of the proper classification and rate. The insured refuses to pay the increased premium resulting from the application of the proper rate and the insurance company brings suit against the insurer. Judgment for whom? Give reason.

3. The plaintiff M gave money to her husband to buy liverwurst and, pursuant to the wife's directions, the husband made the purchase from the defendant's store. M and her son ate some of the liverwurst and became sick. The liverwurst, which was prepared by a nationally-known food company, was found to contain ground glass. Discuss the plaintiff's rights against the store. May she have a cause of action against the food company? What rights has the son against the store and food company?

4. Outline the restrictions contained in the New York Insurance Law on the investment of casualty insurance company reserves in preferred stocks. Do these restrictions provide sufficient protection? In what way, if any, do these restrictions interfere with a sound investment policy?

5. Outline the provisions of The Uniform Act of the National Association of Insurance Commissioners for the rehabilitation, conservation and liquidation of insurance companies.

	Company A	*Company B*
6. Capital Stock	$ 5,000,000	$ 5,000,000
Surplus	6,000,000	6,000,000
Voluntary Reserve	——	1,000,000
Unearned Premiums	10,000,000	8,000,000
Outstanding Losses	25,000,000	16,000,000
Other Liabilities	2,000,000	2,000,000
Total Liabilities	$48,000,000	$38,000,000
Common Stocks	$30,000,000	$10,000,000
Total Preferred Stocks	——	8,000,000
Total Bonds	10,000,000	16,000,000
Cash	3,000,000	2,000,000
Other Assets	5,000,000	2,000,000
Total Assets	$48,000,000	$38,000,000

Discuss the relative standing of the above two companies on the basis of the balance sheet items shown above. The discussion should cover the differences in investment policies and the effect of such policies on the standing of the companies.

7. (a) The centralized compensation ratemaking procedure followed in the various regulated states would seem to be diametrically opposed in principle to the anti-trust and anti-compact laws. Explain why such an anomaly is allowed to exist.

   (b) In several state compensation acts, the employer is required to pay a sum to the state in the case of no-dependency fatal cases. How can such a requirement be justified in view of the fact that compensation acts are designed to benefit the employee and not the state?

8. (a) What part does insurance play in the processes of production?

   (b) What are the three fundamental methods of eliminating the undesirable consequences of risk?

PART II

1. What is the purpose of maintaining an unearned premium reserve and what is the theory underlying its calculation? In what respects does non-cancellable accident and health insurance present additional problems in theory and practice?

2. (a) What is the requirement of the New York Insurance Law as regards "incurred but not reported" claim reserves maintained by a company on fidelity and surety bonds?

   (b) What three fundamental considerations underlie the construction of tables used in evaluating death and permanent total compensation claims in New York?

3. (a) Give the details of a procedure which you would suggest to prepare the necessary statistics to meet the National Council's Semi-Annual Call for Wage Data.

   (b) Many carriers have clinics in large cities which serve their compensation risks in the immediate vicinity. Suggest a procedure by which a carrier can properly assess the cost of the clinic and which will meet experience reporting requirements under the Unit Statistical Plan.

4. The trend in covering third party liability losses is to provide comprehensive coverage using a single exposure to determine premium. Our present statistical methods are designed to handle multiple exposures and premiums for specific hazards. What changes would you recommend in our statistical systems to accommodate this new method of underwriting?

5. (a) Outline the changes which may take place in compensation loss ratios by calendar month during a rise in the index of industrial activity.

   (b) Explain the necessary adjustments in the company's records due to the operation of the "pro rating" clause in a personal accident policy when an insured changes his occupation and makes claim on account of injuries received in his new occupation.

6. In what respects do the first four pages of the convention form of the annual statement blank for miscellaneous companies differ from similar statements of general commercial organizations? Would you recommend any changes?

7. (a) Why is it necessary to have Schedule P for compensation and liability insurance and not for other lines of insurance?

   (b) For what other lines of insurance, if any, do you think it would be advisable to establish a schedule similar to Schedule P?

8. Underwriters determine profit or loss in a line by comparing the experienced loss ratio with the permissible loss ratio. Devise a method to be used by underwriters when a large number of risks are written either on a retrospective basis or on a graduated expense basis.

PART III

1. (a) Explain the theory of the Garage Schedule Rating Plan.

   (b) What is the justification for the normal-excess split used in experience rating?

2. (a) Under certain circumstances an experience rating will result in a debit although the experienced loss ratio has been less than the permissible loss ratio. How would you justify the debit?

   (b) What two criteria may be used in the selection of "*k*" values in an experience rating plan?

3. With the increasing use of Comprehensive Third Party Liability Coverage, there is a demand for Comprehensive Experience Rating. How would you change the present Liability Experience Rating Plans to meet this demand, basing credibility on the entire exposure?

4. A corporation having 5,000 employees decides to set up a contributory pension system for its employees. Outline very briefly what you would recommend to this corporation, considering the necessary statistical analysis, schedule of benefits, method of financing and the valuation of liabilities.

5. Outline the basic provisions of the New Hampshire Financial Responsibility Act. What is the practical effect of the Act?

6. Should the principle of experience rating be introduced into unemployment insurance as it is now constituted? Describe briefly how such an experience rating plan would work.

7. It has been suggested that the so-called "policy year projection factors" be eliminated from the calculation of the Expected Loss Rates of the Experience Rating Plan of 1940 (Multi-Split Plan). What is your reaction to this suggestion? Give some justification for the position taken. Also analyze the effect of this change on the modification of a self-rated risk. Do you prefer the present or proposed procedure in this circumstance?

8. Assume you are arranging a reinsurance treaty for a company engaged in the writing of Workmen's Compensation and Public Liability:

   (a) What considerations would determine the amount of loss to be retained by the direct-writing company?

   (b) What arrangements would you make for the situation in which a single accident involves several assureds and several claims for both Public Liability and Compensation?

   (c) How would you determine the premium rates to be paid to the reinsurer?

   (d) In determining the liability of the reinsurer, how would you treat Allocated Claims Expense?

CASUALTY ACTUARIAL SOCIETY

PAPERS IN THE PROCEEDINGS

VOLUME I NUMBER 1 PP. 76

Scientific Methods of Computing Compensation Rates. I. M. Rubinow.

How Extensive a Payroll Exposure is Necessary to Give a Dependable Pure Premium. Albert H. Mowbray.

Valuation of the Death Benefits Provided by the New York Compensation Law. Winfield W. Greene.

VOLUME I NUMBER 2 PP. 130

Workmen's Compensation Claim Reserves. Miles M. Dawson.

Workmen's Compensation Reserves. Joseph H. Woodward.

A Method Proposed for the Calculation of Liability and Workmen's Compensation Claim Reserves. Benedict D. Flynn.

The Essential Factors in the Computation of the Cost of Workmen's Compensation. W. N. Magoun.

VOLUME I NUMBER 3 PP. 109

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