PROCEEDINGS

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CONTENTS OF VOLUME XV

NOTICE.

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PROCEEDINGS

NOVEMBER 23, 1928

PRESIDENTIAL ADDRESS OF THE FIFTEENTH ANNUAL MEETING OF THE CASUALTY ACTUARIAL SOCIETY

SANFORD B. PERKINS

My final message to you as President of the Casualty Actuarial Society will, indeed, be brief. It will consist of a review of some of the various problems that have confronted the Council which is, in effect, your working committee, and the solutions or progress made towards the solutions thereto.

Before proceeding, however, with such a review, I am forced to a realization that although in general the progress of the Society during the past two years has been a source of satisfaction to the present administration, nevertheless, within that period everything has not been as could have been desired. Two years ago there were listed among our membership, five whose presence with us at this time would bring happiness to our hearts and whose absence—the reason for which is incomprehensible to us—has been decreed by a power against whose dictates we have no right to demur. Such is progress, for though these men may not be numbered among our present members, past association with and memories of them will inspire those of our Society who were fortunate enough to be closely related to them to carry on to the end that our profession and our Society may be the better for their having been a part thereof.

POLICY OF THE SOCIETY TO HOLD SEMI-ANNUAL SESSIONS AWAY FROM NEW YORK

At a regular meeting of the Council held on March 24, 1927, it was decided that the best interests of the Society would be served if the semi-annual meetings were held in various cities. Several distinct advantages seemed to be offered by such a policy first, the Society membership is so scattered that while New York seems a logical assembling place, nevertheless, there may be and doubtless are many of our members who cannot find it possible to get away from their business headquarters as long as would be required to get to a session in New York. If the semi-annual meetings were held at a point more accessible, such members would find it possible to attend and who under the present arrangement can not get to every meeting. Further, membership in the Society would without question seem more attractive to the new entrants into the actuarial and statistical field if there were an apparent likelihood that they could attend some of the sessions of the Society which would not require traveling a considerable distance. Then, too, it is conceivable that there are many members who would welcome the opportunity of making their attendance at such sessions return to them something of interest and value in addition to the natural advantages derived from the meetings themselves. Points of historical or artistic value might be visited, old friendships renewed, and without too severe strain upon the imagination, business conferences might be conducted which while not urgent enough to demand a special trip, could be more satisfactorily accomplished by personal visitation than by correspondence.

As a result of full consideration of the matter and as is well known to you, such a policy was adopted and has been followed during the past two years. It may be too short a time for a meaningful analysis to be made as to its effect but, at least, certain superficial observations may be made upon the success of the venture. Personally, I have been disappointed in the experiment. But that means little. The fact remains that the attendance at neither of the two semi-annual sessions held during the past two years—one in Boston and one in Philadelphia—has exceeded the lowest mark recorded during the five previous years. True, the intervening annual meeting held in New York was well attended, the attendance being the largest recorded for the full seven years with the one exception of the decennial celebration session in November 1924. Even so, the average for the past four sessions or past two years is but three in excess of the average of the five previous years, excluding the November 1924 meeting. This does not even keep pace with our increasing membership.

The exact personnel of the attendance has not been analyzed to determine whether the new policy has reached members who might not have attended under the former plan. There may be some consolation in such an analysis.

For the lack of arrangements to provide what may be termed extra-curriculum activities, it is my belief that we have our administrative staff to blame—principally our President—who failed to indicate to the committee on arrangements that any such provision might be in order. Permit me to emphasize that nothing herein contained should be construed as reflecting unkindly upon either of these committees for in one instance, at least, local members of the Society stood ready and willing to act as hosts and personal conductors at the pleasure of the membership. The fact was that we as a Society had made no arrangements nor had we solicited successfully nor extensively enough the desires of the members in this connection. Therefore, before passing definite judgment on the success or failure of the policy at this time, it is my hope that it may be continued temporarily, with the knowledge that a recognition of the weaknesses in administration developed up to this stage will point the way to correction in the future.

Requirements for Admission to Membership

At the present time the Syllabus of Examinations for admission to the Society is so arranged that the Associateship sections deal with academic or undergraduate collegiate subjects, whereas the Fellowship sections cover subjects which for the most part deal with the practical side of casualty insurance. This arrangement was adopted in the Fall of 1925, the thought being that by grouping all of the academic subjects in the Associateship Examinations it would enable students and college graduates interested in the casualty actuarial profession to pass off the Associateship Examinations while these subjects were still fresh in their minds. Also, it was felt that this would serve to interest a greater number in becoming members of the Society earlier than would be the case under the previous Syllabus which required familiarity with the practical side of the business for qualification as an Associate.

Coupled with this change in the Syllabus of Examinations there was adopted at the same time a rule providing that the candidate having passed both Parts I and II of the Associateship Examinations, would be enrolled as an Associate, provided he could present evidence of at least one year's experience in actuarial, accounting or statistical work in casualty insurance offices; or in the teaching of casualty insurance science at a recognized college or university; or other evidence of his knowledge of the actuarial, accounting and statistical work of casualty insurance offices as would be satisfactory to the Council of the Society. It will be noted that this rule has the effect of restricting Associate membership to those who are actually engaged in some phase of casualty insurance.

There has been considerable discussion as to the desirability of the restrictive nature of this rule and in May 1928 the rule was revised to the extent of allowing the Council of the Society to determine the qualifications of a candidate who had been successful in passing the Associateship Examinations but who had not had at least one year's experience in actuarial, accounting or statistical work in casualty insurance offices or in the teaching of casualty insurance science at a recognized college or university.

However, this revision in the rules has not been regarded as providing a thoroughly satisfactory solution to the question as to just what qualifications should be necessary for admission as an Associate in the Society. The rule as it now stands places the responsibility for selection on the Council of the Society and it is felt that, if possible, this should not be necessary and that it would be much better if the examinations could be so arranged that they would provide a complete test in themselves as to the qualifications of the candidate for admission to the Society. Therefore, at the present time the Educational and Examination Committees of the Society are giving careful consideration to the feasibility of adding to the Associateship Examinations a new Part covering elementary practical questions. The purpose of adding such a new Part to Associateship Examinations would be to make it unnecessary to set up further qualifications as to the candidate's practical experience before admission to the Society. In my opinion, such a change in the Syllabus appears to be desirable as it will not only place the qualifications for admission to the Society on a more definite basis but will also remove from our requirements the necessity for the present more or less restrictive rule which I believe is objectionable. Another advantage of such a change in the Syllabus will be that the present Part I of the Fellowship Examinations, which at the present time covers a very extensive range of subject matter, could be lightened considerably by removing therefrom the elementary practical questions which would be included in the suggested new Part of the Associateship Examinations. I believe, even with such deletion of subject matter from Part I of the Fellowship Examinations, that there would still remain ample material in this Part to guarantee an examination entirely in line with the Syllabus as a whole. In other words, let no one get the impression that through this change, if it materializes, the candidate sitting for Part I of the Fellowship Examinations will enjoy a sinecure.

Acceptance of Advertising for Insertion in the Proceedings

In recognition of the fact that the heaviest individual item of expense to the Society is incurred because of the publication of the *Proceedings*—this item alone accounting for approximately three-quarters of the total expense and further, because the income derived by the sale of the *Proceedings* does not cover the cost of its publication and distribution—the Council has considered ways and means by which the deficit may be offset.

Of course, one way of remedying a situation such as this is to make a more substantial charge for the article sold. Naturally and humanly too, there is usually an adverse reaction to such a suggestion. Anticipating the unfavorable reaction to such a proposal, the Council gave its immediate attention to some other way in which the necessary income might be derived. The most logical method was that of accepting advertising for insertion in the *Proceedings*. Admittedly, the *Proceedings* has a limited circulation but it was felt that there are enough concerns handling goods or dealing in commodities of particular interest and use to just the type of business enterprises represented by our membership that a satisfactory income could be procured by a selective acceptance of advertising from such houses. Consequently, the Council authorized the Secretary-Treasurer to accept advertising for the *Proceedings* from commercial organizations excluding insurance companies and including organizations such as participate in a business show. The amount of advertising so accepted is not to exceed twenty pages. The Secretary-Treasurer was given rather extensive power in this connection and unless the plan appears to be practical and feasible after it has been attempted, it may not be made effective.

EDUCATIONAL TEXT BOOKS OF THE CASUALTY ACTUARIAL SOCIETY

In 1926 the idea was conceived of having published under the auspices of the Casualty Actuarial Society a set of insurance text books covering different phases of the insurance business in a way which would be of interest to students of insurance as well as of value to men engaged in the business. Four such books are at present in the course of preparation.

A book on Casualty Insurance Accounting by Mr. R. S. Hull should be completed within the next six months.

Mr. William Brosmith supervised the compilation of a work on Casualty Insurance Law. Part I covers the introduction of Casualty Insurance Law and Part II deals with the legal phases of Accident and Health Insurance. Arrangements are now being completed for publication.

Mr. S. M. LaMont has completed his book on Personal Health and Accident Insurance and its early publication is expected.

Substantial progress has been made in the preparation of a text book on Workmen's Compensation Rating Theory and Practice by Miss Emma C. Maycrink.

Text books such as these represent a valuable contribution to insurance literature and the Society may well be proud of having sponsored a movement of such practical value.

BOOK REVIEWS

Within the past few weeks a suggestion has come to us from a representative of the Actuarial Society of America that an effort be made to establish a working arrangement between that organization and ours whereby the existing duplication of effort involved in having members of each Society review publications which are of interest to both be eliminated. At the present time representatives of both Societies are engaged in formulating an arrangement under which a review made by a member of one Society will be available to both. Such cooperation is commendable and should be encouraged.

FORUM DISCUSSIONS

The Program Committee has, during the present administration, inaugurated the open forum discussion period which now has a permanent place on our order of business. It was considered that an informal discussion of topics of current interest would bring about a better understanding of the fundamental purposes to be served by our Society. As you know, in order to promote active participation in such subjects as are suggested for consideration, some of the members are advised in advance of the meeting that they are expected to contribute comments on a given subject. This in itself is quite in order and should have the effect of producing spontaneous reactions in the minds of others with the result that a real, enlightening and educational interchange of ideas might develop. It is quite possible, however, that if these leaders in discussion do not act as just that, a condition may be created under which their comments will be accepted by the membership as merely additional papers or prepared contributions and as such, will not inspire augmentation or further manifestation of interest by others beyond that of listening attentively and applauding politely. Such a condition would be deplorable and is to be assiduously avoided lest the value of the forum be destroyed.

The fact must be faced, of course, that the time allotted to our sessions is comparatively short and by the time the regular order of business has been completed, the regular papers presented and sometimes read and the guest speakers heard, little time remains for anything else. The business of the Society must be conducted. The guest speakers, we are most anxious to hear and would not under any circumstances restrict the time utilized by them in answering questions which develop out of their subjects presented. There remains but the time expended in presenting regular papers and since such papers will seldom if ever be discussed at the sessions during which they are presented and will always appear in a subsequent issue of the *Proceedings*, I am of the firm belief and strongly urge that all regular papers be presented formally and in brief or skeleton form. No author should take offense at such a suggestion or requirement for, as a matter of fact, human nature is such that if a paper has been read the hearers are much less inclined to read it when it appears in the *Proceedings* and many times papers have to be read carefully and analytically to be fully appreciated. Under such an operating program much time of the actual session would be saved and could be devoted to the open forum which, in my opinion, can be developed into one of the most beneficial features of our sessions.

Conclusion

The conclusion of this the final message of your present President, will almost conclude his administration. You are about to elect a new set of officers and my one wish for them is that they may receive the same quality of assistance and cooperation that it has been my good fortune to receive. I can not express in too convincing a manner my appreciation of the splendid support which I have received from the other officers, from committee chairmen as well as the committees themselves, and from the membership as a whole.

I retire with a sense of gratitude to you for the honor that has been mine to serve as your presiding officer and with the hope that I may be of some service to the new and succeeding administrations.

THE PERMANENT TOTAL DISABILITY PROVISION IN LIFE INSURANCE POLICIES

BY

EDWARD B. MORRIS

There are many reasons for bringing this subject to the attention of the members of this Society but principally because of the similar elements found in the contracts of non-cancelable accident and health insurance with which you are more familiar. The conditions under which these two coverages are written, however, differ considerably. The permanent total disability provision is a part of a life insurance contract and is not written separately. This fact is of considerable moment when one considers the element of selection. In order to obtain the permanent total disability provision the applicant must pay the relatively larger premium for the life insurance feature of the contract. (The disability income and waiver extra premium on the average is perhaps 10% of the total premium charge.) In order to obtain a relatively large monthly income under the disability provision it is necessary to make a very considerable investment in the life insurance contract. This in itself to some extent safeguards the insurance company against adverse selection. The non-cancelable accident and health contract has not, of course, this protection.

The underwriting of the disability provision has, or should have, much in common with accident and health underwriting. Unfortunately, many life insurance companies do not have in their employ underwriters trained from the accident and health point of view. Furthermore, the handling of disability claims represents a very much more complicated situation than is true of death claims, not only in the original consideration of the claim but in the continued care and observation necessary.

The accident and health companies that have accumulated their experience have much information of value to the life companies, although for reasons already expressed the results may be considerably different, but the fundamental results should not pass by unnoticed.

The accident and health companies have likewise considered the limiting of indemnity in terms of the insured's income as a necessary fundamental. Earlier accident contracts actually made provision for the prorating of claims to percentage of income, perhaps two-thirds of the income. The life companies have not as yet taken the same care in underwriting, partly because the facts of disability insurance in the various companies have not always been before them and partly because the possibilities of selection have not always been fully realized. It is pleasing to note, however, that many companies now do include in their applications for insurance inquiries to bring out this information to the underwriter.

It is knowledge of this kind, obtained after long experience in handling accident and health business, which will be of value to the life companies in connection with disability claims and I hope that the discussions of this paper may aid in this regard. It is not strange that a purely life company should pass lightly over points which are considered important by accident and health underwriters, particularly when it is realized that there is a certain natural protection under the life contract because of the total premium charged.

The disability provision has undoubtedly played an important part in the rapid increase in popularity of life insurance within the past twenty-five years. Individuals who may not be particularly attracted to life insurance are more likely to buy the coverage because of the features in the disability provision connected therewith and perhaps for a larger amount than would otherwise have been the case. The disability provision is regarded in life insurance circles as a necessary complement to life insurance and in no wise as a frill.

In 1896 The Fidelity Mutual Life Association of Philadelphia,* then doing an assessment business but later changing to the legal reserve plan in 1899, issued a contract with a permanent total disability provision. Historically, this has been assumed to be the forerunner of the disability provision in this country. Fraternal organizations in this country, however, had previously granted permanent total disability benefits, generally of the premium or assessment waiver type, evidently a development of similar provisions abroad. In 1904 The Travelers Insurance Company* announced the first disability provision that provided directly for a premium waiver benefit. Following the action

*See historical note at conclusion of paper.

of The Travelers the life insurance companies, appreciating the possibilities of this feature, began to incorporate the disability provision in their life contracts until today almost without exception the life companies offer some form of permanent total disability coverage. From the premium waiver clause attempts were shortly made to provide some form of yearly cash instalment benefit to the totally and permanently disabled insured. At first these benefits simply provided for a drawing account against the policy, limited to a certain amount yearly, generally $50.00 for each one thousand dollars of insurance. The plan was the forerunner of the later maturity clause which transformed the value of the insurance at the time of permanent total disability into a life income with a certain number of payments guaranteed, the contract paying the present value of the balance of such instalments at the insured's death. These plans provided for cash benefits to the totally and permanently disabled policyholder partly at the expense of the insurance. In 1916 The Penn Mutual Life Insurance Company of Philadelphia announced the forerunner of the modern annuity provision whereby not only were the premiums waived but a definite income of $100.00 a year for each one thousand of insurance was granted during disability, the insurance feature remaining unchanged and in force. This is the principal type now used by all companies, although the customary unit of income is $10.00 a month for each one thousand of insurance.

The earlier clauses were based upon proof of total and permanent disability. Fundamentally, benefits were intended only to those disabled for life, or presumably so disabled. This immediately caused complications. Except in cases of disappearance it is a comparatively easy thing to prove that a man is dead. As a matter of fact, the only concern of the claim departments of life insurance companies is to make sure that the deceased was the insured under the policy of insurance. To determine whether disability will prove to be permanent is obviously a difficult matter—often a matter of opinion. In the earlier days of the development of the disability provision the claim departments of the companies were slow in approving permanent total disability claims because of the difficulty of the proof of permanency. The situation was unsatisfactory and it was necessary to decide upon a more satisfactory definition of disability, hence, the ninety days and the six months provisions under which total disability lasting for ninety days or six months was considered permanent disability, the insured being entitled to disability benefits as long thereafter as he remained totally disabled. In connection with the ninety days definition, obviously many claims are paid which are of a temporary nature. Disability from typhoid fever for a period exceeding ninety days will call for benefits under this type of clause, although obviously the benefits would run for a very short time until the insured's recovery and his ability to again assume his occupation.

The following is a typical clause defining permanent total disability as found in the policies of one or more companies:

> "the insured has become wholly disabled by bodily injuries or disease and will be wholly and continuously prevented thereby from engaging in any employment for wage or profit."

The development of the disability provision in life contracts has been an interesting one. Unquestionably it offers a strong talking point for the agent in his presentation, a feature which the companies have recognized. To a certain extent this phase has been fostered by some companies. The provisions have been developed in various ways so that the clauses of the various companies now differ in many details. This will perhaps be more clearly seen from the following table which gives a summary of the disability clauses issued in conjunction with life insurance by the fifty largest companies issuing such a provision in 1928, this table being compiled from the practices of companies practically to October 1928.

Summary of Income Disability Clauses Issued in Conjunction With Life Insurance by the Fifty Largest Companies Issuing Such a Provision in 1928

A. Upper Age Limit—

1. 44 companies provide disability coverage until age 60.
2. 6 companies provide disability coverage until age 65.
3. Among the 44 "Age 60" companies, 5 grant coverage to 65 on certain forms, *e.g.*, policies providing for insurance to age 65 with life income thereafter.

B. Modified Coverage over Upper Limit—

1. 40 companies grant no coverage above their upper limits.
2. 9 companies waive premiums as a lien against the insurance.
3. 1 company grants regular premium waiver without lien.

C. Commencement of Income Benefits, given in the Order of their Liberality—

1. 8 companies pay the income from the commencement of disability.
2. 11 companies grant the income from the commencement of disability, but do not date payments back more than a stipulated period prior to receipt of proof.
   - 2 companies, 1 year;
   - 7 companies, 6 months;
   - 2 companies, 90 days.
3. (a) 4 companies pay from commencement, if permanence is proved, but, otherwise, from the end of 3 months following commencement, but do not date payments back more than a stipulated period prior to receipt of proofs. (This period is 6 months or 1 year.)

   (b) 2 companies pay from commencement if permanence is proved within the first 3 months, otherwise from the end of the third month, but do not date payments back more than 6 months prior to receipt of proofs.
4. 3 companies pay the income from the end of 3 months following commencement, but do not date payments back more than 6 months prior to receipt of proofs.
5. 21 companies pay from receipt of proof; a few of them state "approval of proof."
6. 1 company commences the income 60 days after receipt of proof.

D. Commencement of Premium Waiver Benefit—

In most companies the premium waiver dates from the time of commencement of income. In 1 company premium waiver is granted from commencement but income from receipt of proof.

E. What establishes Permanence—

1. 37 companies consider the disability permanent if it endures for a certain period; 34 of them have the period 90 days (or 3 months), 3 have 6 months; 4 of these companies also have a second clause, 1 of them with a 2 weeks period, another with a 30 days period, and the remaining 2 requiring proof of permanence before commencing payments.
2. 12 companies require proof of permanence before commencing payments and 3 of these in addition require that disability shall have lasted a stipulated period (one 2 months, the others 3 months).
3. 1 company's practice could not be determined from the information at hand.

F. As to the Existence of Disability at Time of Proof—

1. 8 companies do not require that disability exist at time of proof.
2. The 42 others do, although a few clauses are indefinite on this point.

G. The Possibility of Lapse occurring during Disability—

1. In all but 3 companies it is possible that the non-payment of a premium during disability may lapse the policy.
2. 4 companies, while granting premium waiver from commencement, require that premiums be paid until approval of proof, at which time a refund is made; if a premium is more than six months overdue at time of proof it is considered a default.

H. Disability Income as affected by the Maturity of Endowments—

1. (a) In 31 companies the income continues after the maturity of Endowments;
   (b) In 2 of these certain instalment Endowment policies do not so continue the disability income.
2. In the other 19 companies the disability income is not continued beyond maturity. One of these companies does continue it under a certain instalment Endowment form.

I. Disability Clause void—

In 20 companies the entire disability clause is voided by military or naval service in time of war, and in addition in one of these companies it is also voided by engaging in aeronautics or submarine trips, except as a fare-paying passenger.

The other 30 companies have no provision for voiding the clause, if premiums are not in default.

J. Ineligible Disabilities—

1. 31 companies exclude disability resulting from certain causes as follows:

   24, Military or naval war service;
   20, Self-inflicted injuries;
   11, Aerial or submarine casualties;
   5, Violation of law;
   2, Insurrection or riot;
   1, Police duty;
   1, Automobile racing;
   1, Residence or travel outside of United States or Canada;
   1, Manufacture of explosives.

2. The other 19 companies have no restrictions in this connection.

K. Professional Clause—

In addition to the regular disability clause 3 of the 50 companies have a special provision issued only to certain professional occupations, which provision pays benefits if disability prevents the insured from pursuing his regular or customary occupation. An extra premium is charged for this clause.

L. Amount of Income Payments—

1. 48 companies pay $10.00 a month for each one thousand of insurance.
2. As an additional clause, 4 companies pay increasing incomes, $10.00 a month for 5 years, then $15.00 a month for 5 years, and $20.00 a month thereafter.
3. 1 company has this increasing income clause only, with no level income clause.
4. 1 company pays $15.00 a month for each one thousand of insurance.

M. Miscellaneous—

1. 1 company has an additional clause which pays a double income if disability is caused by accidental means.
2. 1 company pays $20.00 a month per unit of income under certain old age income policies. The face value of these policies is $1,320 or $1,510 per unit of income.
3. 1 company pays, on Endowment instalment policies, a disability income equal to the amount of instalment normally due at maturity.
4. 1 company, regardless of the form, matures the policy for its face amount at age 60 but continues the income payment for life.
5. 2 companies on their "income for beneficiary" forms pay a disability income of the same amount as the income payable at death.

The above table describes, perhaps as clearly as possible in compact space, the present situation and the apparent lack of uniformity as to disability provisions offered by the various companies. In order to get a clearer idea of the situation, it may be well to discuss the various features included in the above table.

A. Upper Age Limit: The majority of companies cover disability incurred before age 60, although a few companies use 65 as the limiting age and a few grant additional benefits under certain policies maturing at 65. Permanent total disability naturally becomes more susceptible of proof with advanced age. The purpose of the disability clause, however, is to insure against disability that would interrupt the business activities of an individual and not to provide an income in old age, consequently, the necessity for a limiting age. Obviously, the companies that go to 65 are exposed to a type of disability foreign to those that cease at 60. The 65 clause, therefore, calls for a considerable increase in premium and even then may be dangerous because of the lack of experience on which to predicate rates.

B. Modified Coverage over Upper Limit: Here again we find fairly uniform practice. The benefit of waiving premiums as a lien against the face of the insurance is, however, of much less value than the premium waiver benefit. Granting the premium waiver benefit without an upper age limit is, of course, a real benefit, but involves a considerable increase in premium, particularly at the high ages.

C. Commencement of Income Benefits, given in the Order of their Liberality: Here we find a very considerable difference in treatment between companies. It will be noted that some companies start to pay the income from commencement of disability without regard to the time of receipt of proof. Others pay from commencement of disability provided proof is received within a certain period from such commencement. Others will incur no benefits until after proof has been received. There must properly be a considerable differentiation in the rates charged by the companies for these various types. The experience of The Travelers Insurance Company indicates that there is an average delay of about nine months between the commencement of disability and the receipt of proof and of about eleven months before approval of claim. In some cases the delay is a matter of years. This is not altogether surprising when the situation is analyzed for frequently an insured does not appreciate the terms of his contract. Certain claimants for conscientious reasons may delay in making claim. An insured might be committed to an insane asylum and it is entirely possible that the disability benefit in his life policy will not be discovered until his death. Obviously, under such a case there would be a very material difference in benefits between a company that agreed to pay from commencement of disability and one that required that no benefit accrue until after receipt of proof.

The delay in presentation of claims is of considerable importance in connection with the financial statements of the insurance company in the matter of adequate reserves to cover the existing but then unreported claims. This is a very material reserve which as yet has not been fully appreciated by some companies.

D. Commencement of Premium Waiver Benefit: It will be noted that in general the companies provide that premium waiver benefits shall start from the same date that fixes the income benefit. With those companies which pay benefits from commencement of disability this makes no difference, but, obviously, if the premium waiver benefits and the income benefits coincide for the other class of companies it may be possible that a contract under which an insured had been disabled but had not presented proof might lapse. It is only just that the premium waiver benefit should date from the commencement of disability in order that the contract may be rendered lapse proof in case of disability.

E. What establishes Permanence: Here it will be noted that there is a considerable divergency in clauses, although the so-called ninety days clause appears to be more generally accepted.

F. As to the Existence of Disability at Time of Proof: Eight companies do not require that disability exist at the time of proof but twenty companies, out of the twenty-eight companies that allow retroactive payments, do. It seems only reasonable, however, to allow claims after recovery provided the insured would have been entitled to benefits if claim had been made during disability.

G. Possibility of Lapse occurring during Disability: In all but three of the fifty companies it is possible that non-payment of the premium during disability may lapse the contract. (See note in section *D.*)

H. Disability Income as affected by the Maturity of Endowments: Here we find a difference in treatment with, of course, a corresponding difference in premium. The argument in favor of continuing the disability income after the maturity of the Endowment appears to be logical if one considers the disability income feature as a separate coverage.

I. Disability Clause void: Here again will be found a difference in treatment, although a majority of the companies make no provision for voiding the clause unless premiums are in default.

J. Ineligible Disabilities: Thirty-one companies exclude disabilities resulting from certain causes, while nineteen companies make no restriction in this connection.

K. Professional Clause: It will be noted that three of the fifty companies provide for a special disability provision issued only to certain professional occupations, paying benefits if the disability prevents the insured from engaging in his regular or customary occupation. This clause, of course, is issued only at an additional premium and is of a considerably different type, familiar to accident and health underwriters.

L. Amount of Income Benefits: Of the fifty companies, forty-eight provide benefits of $10.00 a month for each one thousand of insurance, although four of the companies provide also under separate contract for an increasing type of coverage. One company pays a monthly income of $15.00. Benefits of $10.00 a month have been generally accepted as the proper unit. If the income is $15.00 a month instead of $10.00, obviously the value of the disability provision is correspondingly increased. Certain of the states, however, recognize in their laws the $10.00 a month unit. There seems to be but little reason for a disability clause providing for an increasing income. Probably most disabled insured would need a larger income immediately following the time of disability than later on when adjustments could be made. The basic argument for the $10.00 unit is this: 6% interest on $1000 of insurance will provide the beneficiary at the insured's death with an income of $5.00 a month. The amount needed by the insured and beneficiary together is usually not more than twice that needed by the beneficiary alone.

The reaction one must necessarily receive from reviewing the above data is that there exists a considerable lack of uniformity in the coverages of the disability provisions of the various principal life companies, particularly in connection with certain important features. Certain of these are important from a premium point of view. This lack of uniformity is to be deplored for various reasons. Perhaps the most important has been that it has been almost impossible for the companies to combine their experiences in order to obtain a proper basis for rates and reserves, inasmuch as the existing experience is not of a homogeneous character. A few years ago, at the request of the insurance commissioners, The Actuarial Society of America made an investigation of the experience of various companies as to permanent total disability. The result, because of lack of homogeneity, was, to say the least, disappointing. Not only has it been impossible to obtain an entirely satisfactory basis for the rates for the clause itself, but it has been equally impossible to obtain reserve liabilities which accurately met the situation. This has been particularly true at the higher ages where the permanent total disability rate becomes more important. In this connection the experience has been particularly weak. The companies have, of course, had access to certain experiences which have been used in connection with premium rates and reserves. My point is that these experiences are not the actual experiences of the companies on the permanent total disability provision but have been made up from accident and health data to a certain extent. The legal requirements, therefore, for valuation have been somewhat uncertain, particularly as the state governments have naturally been unable to prescribe a proper basis for valuation. This situation will undoubtedly exist until a homogeneous experience can be obtained. It is, of course, true that the companies have come to realize the seriousness of the situation and that there has been a very marked tendency to increase the disability premium rates, but to date these increases are based very largely upon conjecture. The larger companies can undoubtedly stand some strain because of inadequate premiums on the general theory that such resulting losses can be regarded as acquisition cost on an increased amount of business. While this may have been, with some justice, considered as good business in the past, it is not a particularly happy situation from the viewpoint of the actuary, nor will it be possible when proper knowledge and experience have been obtained. The point further comes up in a somewhat embarrassing way in connection with the companies that write mutual life insurance. Such companies usually put the disability premiums on a non-participating basis. If the disability provision of such companies does result in a loss, it must in a measure affect the dividends, or at least the surplus accumulations, of the life insurance contracts. If all policies were issued with a disability provision this might not perhaps be a serious matter, but when one considers that the disability coverage is optional embarrassment may result, particularly if the situation is questioned by policyholders who do not have the benefit of the disability provision. It is well known that the rates at least formerly charged for the disability provision are probably in many companies inadequate. This is borne out by a casual examination of the gain and loss exhibits of the life companies. The tendency to increase premiums during recent years is in the right direction but, unfortunately, the companies are still embarrassed by inadequate premiums on a part of the existing business.

The lack of uniformity in clause provisions has been to some extent reflected in the underwriting standards of various companies. The tendency today, however, has fortunately been for stricter underwriting based on a better knowledge of conditions.

The lack of uniformity in the settlement of claims between companies should also be noted. A claimant holding policies in several companies generally considers that he has in each of these companies similar disability provisions, without recognizing that the benefits may differ materially between the companies, consequently, if the settlement in one company is more liberal than in another, he is very likely to become confused and probably will not give the companies due credit for making perfectly proper settlements in accordance with the terms of the contracts. This cannot help but be an embarrassing situation and one hardly good for the business in general.

Obviously, a cure for the present situation would be the adoption of a reasonably uniform clause by the companies. As a matter of fact, a great many insurance executives have expressed the hope that something could be done to secure more nearly uniform practices between companies. The disability clause has gone through a trial period—a period of development—and it is not altogether surprising that various types of provisions have developed. On the other hand, the insuring public would undoubtedly be better served if uniformity of clause and treatment could be established. Various attempts have been made to solve this question. The life actuarial societies have had committees to study this situation. The American Life Convention has had a committee on the subject which has only recently made a very interesting report. Superintendent Beha of the New York Insurance Department last Spring appointed a committee of actuaries to duly consider the subject and advise the New York Insurance Department. Necessarily, it is a question first for the consideration of the actuaries and then the companies and insurance departments.

The discussion of whether the general adoption of a uniform disability provision is practicable is the primary object of this article. The following are recommendations of the author in this connection:

1. Waiver of premiums and income benefit of $10.00 a month for each one thousand dollars of insurance.

2. Exclude benefits because of disabilities commencing after age sixty.

3. Cover any total disability lasting ninety days, income benefits to commence at the end of ninety days, no payments during the first ninety days period.

4. Premium waiver benefit to accrue from commencement of disability.

5. Income benefits not to be dated back for a period exceeding six months before approval of claim.

6. Define total disability as inability to perform the duties of any occupation.

7. No increase in monthly benefits from the unit of $10.00 for each thousand of insurance, and no increase in benefits if disability results from accident.

Obviously, the above are fundamentals. Incidentally, they are the factors which control the premiums. The author has simply taken the present practices of the companies in the main and adopted for a standard clause a fair compromise of present coverages. There is only one more liberal treatment recommended than is general today, namely, that contained in section 4, inserted to make the disability provision govern automatically as to premium waiver and thus render the policy nonlapsable in case of disability.

From the studies made there should be no difficulty in agreement as to sections 1, 2, 6, and 7, as these are general practices. As already stated, the recommendation in section 4 is fundamental and should receive serious consideration by all companies.

Suggestion 3 is a compromise, but from the study of fifty companies not an impossible one, as thirty-five of the fifty companies already use the ninety days provision. It must be recognized that the ninety days clause is a much more expensive one than the six months clause because of the large number of temporary claims that result. Premiums for the disability clause would, of course, be considerably reduced by the general adoption of the six months clause and the companies would be relieved of considerable expensive claim work, but as the ninety days feature has become so generally adopted it seems proper to recommend it as a satisfactory standard.

There will undoubtedly be argument as to the date income benefits should start. Here again a compromise is proposed, but a reasonable one. It will be noted from the study that certain companies already pay from the commencement of disability.

This, of course, is a very liberal treatment but expensive and not only means a corresponding increase in premiums but in practice results in the piling up of a number of accumulated monthly benefits to be paid with the approval of the claim, this for the reason that disability proofs are not presented with the commencement of disability but only months afterwards. Payment from commencement of disability also encourages malingering in certain cases of acute diseases, encouraging the insured to remain away from work until after the expiration of the ninety days period, thus receiving benefits from commencement of disability. Even with the proposed clause the companies will in many cases pay more than one month's benefit with the first payment.

The practice under section 5 has already been adopted by certain companies. It seems only fair to penalize the insured as to income who fails to make claim within a reasonable time, otherwise the companies will be compelled to carry increased reserves. The limitation will further protect the companies against false claims as to the commencement of disability which might, because of the time elapsed, be difficult to disprove. Whether this period should be one year instead of six months is perhaps debatable, but six months already seems to be an accepted period for those companies which do not pay from commencement.

Other features mentioned in the study of the fifty companies are not material from a rate point of view and might well be left to the individual judgment of the various companies, with the possible exception of the question of requirement of proof during disability. It seems to the author that it is only fair to allow a claim after recovery, provided it is certain that the claim would have been approved had proof been presented during disability.

The question of providing disability income on Endowment policies to or beyond the maturity date of the contract is in the main a matter of rate and can be left to the individual company.

Whether certain acts would void the disability provision, such as engaging in military or naval service in time of war, is probably unimportant as to this discussion and can safely be left to the preference of the individual company. The same may be said in regard to ineligible disabilities, although it seems reasonable to exclude self-inflicted injuries when the company's clause contains a provision for benefits in event of loss of sight or of the use of hands or feet, etc.

The author may indeed be presumptuous in believing that it is possible for the companies to generally adopt a uniform disability provision. There is so much to be gained, however, by the companies, by the public, by the insurance departments, and by the business in general, that he at least hopes that this review will receive serious consideration and discussion.

*Historical footnote:

Historically, it is interesting to note the disability provision first granted by The Fidelity Mutual Life Association in 1896 as a part of their Elective Life policy:

(Extract from first page of contract)

"It is further especially agreed that if at any time it should be proven to the satisfaction of the Board of Directors of the said Association that the insured hereunder has become totally and permanently incapacitated, either by accident, bodily or mental disorder, from carrying on any profession or business, the said insured, in lieu of all other benefits and advantages accruing hereunder, shall be entitled to either of the following options:

"First. Such a disability life annuity in exchange for this policy as its face value will purchase at the then age of the insured, according to the Table of Disability Annuity Rates indorsed hereon.

"Second. From the date of the admission by the Board of Directors of such permanent incapacity, the stipulated premiums payable hereunder shall be discontinued or remitted, and this policy shall thereafter be maintained subject to the conditions indorsed hereon from the equation fund.

"It is further agreed that the member or insured making claim under the disability clause aforesaid, must at the time of making such claim, specify in writing under which of the aforesaid options claim is made. In the event of a disability claim being allowed hereunder by the Board of Directors, it is agreed and understood that the present worth of the same shall be carried as a liability on the books of the Association."

(Extract from second page of contract)

"FOURTEENTH.—SAFETY CLAUSE.—The stipulated premium payable hereunder being based on past insurance experience, it is agreed and understood, excluding the first policy year, that the proportion of the undivided equation fund aforesaid to be maintained on behalf of this policy, shall equal the present worth of the sum insured, less the present worth of the future stipulated premiums, according to the Association's past experience, computed at four per cent. per annum, and that this policy, subject to the rules of the Association, shall participate in any excess of such value. If a deficiency shall occur in the equation fund, to be determined by the periodical valuations to be made, as required by the Association's by-laws, the same shall be made good by the payment by every member of the Association of his pro rata share of such deficiency within thirty days from the date of notice of same, or with the consent of the directors, the amount thereof, together with interest at the rate of six per cent. per annum, may be charged against the member's policy, and deducted therefrom when it becomes a claim. PROVIDED ALWAYS, That the accumulated funds of the Association, as required by statute, shall at no time be less than the sum of one periodical or stipulated payment by all the members, and not less than $100,000."

"DISABILITY LIFE ANNUITY

which $1000 Insurance will purchase at attained age.

Age.	Annuity.
21	$47.40
25	49.05
30	51.62
35	54.95
40	59.30
45	65.04
50	72.72
55	83.13
60	97.45
65	117.43
70	145.65
75	185.83
80	243.03

It is agreed and understood, that if the member shall attain the age of eighty years, he will be deemed to be totally and permanently disabled, without further proof."

(The table actually provided annuity payments at each age.)

The following quotation is from a letter of Mr. J. B. Franks, Actuary of The Fidelity Mutual Life Insurance Company, Philadelphia, dated November 18, 1918:

"It (the disability clause) was not of the nature of an extra provision included in a form of contract that could be issued without such a feature, but was an essential part of the Elective Life policy.

"Before adopting this form of policy the management of this company had secured certain data from different associations which had previously been granting certain forms of disability benefits, and after compiling and studying the data thus obtained, arrived at a process for increasing the q_x of the Actuaries or Combined Experience Table by percentages which were assumed to represent the extra contingency of total and permanent disability. In other words, the process was that of expressing the probability of total and permanent disability in terms of extra mortality.

"From tables thus constructed the premiums for the Elective Life policy were computed as a solid net premium without any reference to a part of such premium being considered as the extra premium for disability.

"From the above you will see that we are not able to give you what could be called extra premiums charged under our original Elective Life policy. We had only the net premium on the special table, which included provision for both death and disability, and a uniform loading of $4.00 per $1000. The premium rates charged for the Elective Life policy first issued in 1896 are given below for sample ages,—

"Age.	Premium Rate.
21	$17.44
25	18.90
30	21.80
35	24.36
40	29.58
45	34.34
50	42.42
55	51.28
60	70.98"

About 1903 the author of this article suggested to The Travelers Insurance Company the propriety of including in its life contracts a provision to waive premiums in event of permanent total disability or else of issuing in the Company's accident and health department an independent non-cancelable contract that would provide an annuity of a fixed yearly amount payable to the insured during permanent total disability either for life or until a certain fixed date, the idea being that the annuity could be written for the same amount as the premium under any life contract issued by any company, so that if the insured were totally and permanently disabled he could properly assign the annuity to the insurance company which issued the life contract—this arrangement having the effect of waiving the premiums on the life contract as far as the insured was concerned. The Travelers finally adopted the first idea, although it is rather interesting to speculate as to the development of the disability provision in this country had the second plan been put into operation.

The recommendation above referred to resulted in the premium waiver benefit first announced by The Travelers in 1904. It is interesting to note the wording of the Travelers clause as compared with that of The Fidelity Mutual, remembering the fact that the actuarial methods were entirely independent and of different form. The Travelers contract did not specifically provide for extra premiums, partly for the reason that the contract in question was issued in connection with a special class of policies.

"PREMIUMS ON CONTRACT PAID BY COMPANY IF INSURED IS WHOLLY DISABLED—AS FOLLOWS:

"After one full annual premium shall have been paid and before a default in the payment of any subsequent premium, if the insured shall furnish satisfactory proof that he has become wholly disabled and will be permanently, continuously, and wholly disabled for life, by bodily injuries or disease, from pursuing any and all gainful occupations, the Company, by an endorsement in writing upon this contract, will agree to pay for the Insured the premiums, if any, which shall thereafter become payable during the continuance of such disability. In any such case the Cash Loan and Cash Surrender values shall increase in like manner as if the premiums were being paid by the Insured. If, however, the Insured shall recover so as to be able to engage in any gainful occupation for wages or profit during the premium-paying period, the obligation on his part to make payment of premiums in accordance with this contract shall recommence, but only from date of recovery, with the same force and effect as if this provision were not contained therein."

COMPENSATION RESERVES

Description of a Method Experimented With by the Liberty Mutual Insurance Company to Make an Approximate Check of the Company Estimate Reserve for Workmen's Compensation Insurance

BY

E. ALFRED DAVIES

Statement of the Problem

The subject under discussion is the loss reserve liability for workmen's compensation insurance. It is obvious that there is need for as great an accuracy as possible in the amount of this reserve, because of the many interests involved, including the injured employees, the policyholders, the state, the stockholders where that form of organization prevails, and so on. The problem is to find some way to check, or to prove, the figures set forth as the workmen's compensation reserve, and such method should be as simple as possible, be reasonably easy of application, and obtainable from current data.

Present Methods of Calculating the Reserve

The present methods of calculating the loss reserve for workmen's compensation insurance are two in number—(1) the statutory, or that method prescribed by the convention blank as obligatory for all companies, and (2) the company estimate. The statutory method is to set aside 65% of the earned premium for the particular policy year, at latest reporting, minus the losses and loss expense paid to date. This is an arbitrary formula, applied to all companies, young and old alike, interstate as well as intrastate, in regulated states as well as in unregulated territory, and the result is not always the correct story!

The company estimate is that method by which each company ascertains the reserve on its own business through a valuing of all the outstanding cases, one by one, and summing up the total. This plan depends upon the personal experience and judgment of those who do the estimating, and of course there will be variations in individuals, and even in the same individual at different times. Judgment must be exercised as to the seriousness or otherwise of the many forms of accident, and allowance made for special rules in valuation, such as for the New York cases. A factor has to be added for the accidents which have occurred but which have not been reported, and another factor for the re-opened cases.

Both the statutory and company estimate calculations are made for each and every year of issue. For all years, except the last three, the individual estimates must be used; for each of the last three years of issue the reserve used must be that which is larger, whether statutory or company estimate. The total of the reserves for all years of issue will give the complete reserve for the company. An interest-discount factor is introduced to reduce the final reserve to a present value figure.

Defects in the Present Methods

Workmen's compensation insurance has no such certain basis for actuarial calculations as has life insurance; in the latter phase of the profession there is a very definite contingency—death—and one that can be forecast, in the general sense, with great accuracy. (The features of accident and disability insurances are probably not so certain, but they form only a small part of the total premiums involved.) In workmen's compensation, on the other hand, the contingency is an industrial accident—death is death, and there is no argument about it, but an industrial accident varies all the way from the pinprick of a sales ticket to a serious explosion. What would be an accident, to be reported as such, in one plant, will be handled at the first-aid station and not reported, in the next plant. Therefore, there is no permanent universally similar event around which to build ratios and averages which can be used to predict losses and the costs thereof, and, consequently, the methods in vogue to compute loss reserves are make-shifts, the best that have so far been devised, and intended, so far as possible, to err on the side of absolute safety, as of course they should do.

In any method of figuring the loss reserve, which uses earned premium as the base, there are two weaknesses—the first is, that the recent years' earned premium is not complete; the current policy year is particularly short in this regard, because the statutory earned premium does not include the audits which have been earned but not received; there might be a considerable amount of premium if the recent trend of business had been upward, or the reverse might be true. The second weakness is, that to assume losses to be a definite proportion of the earned premium is to beg the question, for experience might have been better or worse than the prescribed ratio. The difficulty with the individual estimates has already been referred to.

Some Suggested Means of Proof.

For some time, therefore, actuaries have sought for means of checking the reserves—and the recent committee on this question has submitted at least two detailed plans to the members of the Society, which plans are still in the testing. These plans consist of a projection of actual loss ratios of the individual company on the basis of the development of these loss ratios in the previous policy years; and also a method of developing the loss incurred from the losses paid in previous years.

Another Possible Plan of Check

The plan herein described carries out a somewhat similar method of projection to that already suggested by the committee, but bases it on the amounts paid and the accidents happening in a given month. In tackling this problem we felt that the actual loss payments constituted a definite fact which might be made to serve as a basis of forecasting the ultimate incurred, and hence the reserve. It is certain that payments are made only when an accident has happened and responsibility has been determined. Therefore, if these payments, at various points along the way, could be found to have a consistent relationship with the ultimate incurred, a method of check would be available; and, an additional support would be available if the loss payments were found to have a consistent relationship to the number of accidents reported.

An analysis of the loss payments will show that, in each month's payments there are three main divisions: for weekly indemnity, for medical, and on death cases. Each of these three groups can be split into the month of accident, the industry and classification, and the state in which the accident happened. For our immediate purpose let us consider the three main divisions of loss (indemnity, medical, and death) by month of accident, and by month of payment. With these data cut on punch cards, tabulations will be available from which to make reports as shown on the several exhibits herewith. It will be found that the indemnity payments give the most consistent regularity, with medical next, and death least of all.

In securing the "per accident" figures we use accidents reported, although the payments are for the accidents actually happening in the given months. Our reason for this is that the "accidents reported" figure is very promptly available, whereas the final figure as to accidents actually happening is somewhat delayed by late reporting; it is assumed that the lag is fairly uniform.

The Plan

We record the payments as they are made, month by month, by the month of accident, and keep continuous records. As the accidents of a given month are closed out, we can compute definite relationship between the payments of the first two months, the first three months, etc., and the final incurred loss. With a number of such ratios established, an average or base can be established, and the final incurred for the more recent months can be estimated by projecting the payments made to any given date. Again, by fixing an average loss incurred per accident from the same figures already mentioned, and an average paid per accident at all points along the way, we can project, on the basis of the number of accidents, for the more recent months.

We mentioned, earlier in this paper, the fact that "accidents reported" were not of sufficient definiteness to form the same dependable actuarial base for casualty insurance as is provided by death in life insurance actuarial work. However, within the same insurance company, and assuming no radical changes in administrative procedure, it is quite possible that workmen's compensation "accidents reported" will form a means by which to measure the loss incurred, and thus to test the reserve. It is on that theory that we have used the "accidents reported" in the work currently described.

Nevertheless, in considering this measure of the loss incurred, there should be borne in mind the fact that changes in the manner of reporting accidents will perhaps have their effect in showing a larger or smaller sum per accident. Again, changes in the law to give increased benefits will alter the average, putting more expense in the latter end and thus showing the first four months as a smaller proportion of the total. Shortening the waiting period would throw more expense into the earlier months, and tend to make a higher average amount paid per accident.

Distribution of business is another point of possible variation. Further, it is probably a fact that this method would be justified only by a substantial exposure. As already mentioned, we have worked separately with the indemnity, death, and medical. Without doubt, if we were to refine the indemnity still more by taking out the serious cases and treating them separately, a still closer correlation would be found. Changes in the law could perhaps be valued and a factor allowed in the computation: this would complicate the procedure, but would make for still greater accuracy.

Chart I

We found that the payments for the first two and the first three months bore a somewhat steady ratio to the final incurred, but that the ratio of the first four months' payments was considerably steadier. Chart I illustrates this, for the indemnity only—and, incidentally, it indicates that the cases are costing more, because the amount paid in the first four months is becoming a smaller part of the final incurred. The spreading which is seen in more recent months tells, also, that the reserves are sufficient, since the increasing cost would hardly grow at such a rapid pace in a 12-months-ending series of figures, in view of the preceding regularity. It will be obvious, of course, that the incurred is found by the ordinary procedure of estimating the reserve and adding the payments: as already pointed out, this present plan is used merely as an additional check.

Exhibits 1 and 1-A, and Chart II

These forms are designed to show the amount of money paid out month by month for the accidents happening in each of the several months. A cumulative figure is inserted, to give the amount paid out in one, two, three, four, etc., months. No. 1-A is similar to No. 1, but it groups the figures (accidents as well as payments) into 12-months-running totals, to make a smoother series. Separate sheets are kept for indemnity, death, and medical. In Chart II is emphasized the point that the Indemnity paid for accidents happening in the given month does vary almost exactly with the accidents. It will be noticed that the lines on the chart showing the payments made in the first two, the first three, and the first four months follow very closely the line recording the accidents reported. This similarity is found, whether the number of accidents dips as a result of business depression, or rises with prosperity and added business.

Exhibits 2 and 2-A

The amounts paid as recorded on Exhibits 1 and 1-A are actual dollars, and these will vary in accordance with the number of accidents, which, again, are dependent upon change in general industry and in the particular company's business. From the data given in the previous Exhibits, bases, or 100% marks may be established, both for the individual months and for the 12-months ending. For example, suppose that the Indemnity for the base month or average of months is a loss incurred of $5,000, with $2,000 paid in the first four months. Then, if, for the recent month for which we wish to know the final incurred, we have four months' payments totalling $2,200, it might be assumed that since this amount is 10% higher than the base, then probably the final incurred will be 10% higher than the base, or $5,500. Exhibits 2 and 2-A are worksheets for these data. These same comparisons may be made with the preceding month, or a year ago, and so forth.

Exhibits 3 and 3-A, and Chart III

Along the same line of comparison as the preceding, Exhibits 3 and 3-A record the ratio of the amount of loss paid at various points, to the final incurred—that is, using the final incurred as 100%, what percentage is paid in the first month, the first two months, the first three months, etc.? Given the base, we can project the more recent months to a probable incurred for each month, and for each 12-months period; these results can be compared with the reserves secured from Exhibits 2 and 2-A. For indemnity only, Chart III illustrates this, showing ratios of the payments, at various points along the way, to the final incurred. The more recent months and years have, naturally, the larger reserves, and if the reserves are more than sufficient there will be a tendency to make the earlier payments appear to be a smaller proportion of the final incurred. But there will be other factors at work, as mentioned earlier in this paper.

Exhibits IV and IV-A, and Charts IV and V

These worksheets are designed to record the amount of loss paid, and the final incurred, for each accident reported—by separate months and for periods of 12-months-ending. Chart IV shows the payments by months, and Chart V for 12-months-ending. In Chart IV it will be noted that the variations in loss per accident are quite marked, and are seasonal, reflecting the increased cost during the winter months. When smoothed out, as in Chart V, the variation is much smaller.

Exhibit V

Carried to a final sheet, in report form, the data may be displayed as in Exhibit V—using an agreed year as 100% or the actual figures may be inserted if preferred. There is opportunity, in such a report, to tie the whole story together, and to enable any desired action to be taken. You will see that the losses paid, losses incurred, loss reserves, and earned premium, with ratios, are lined up, allowing a general survey to be made. If all indices point in the same direction, that is one thing—if there are contrary indications, then a study may be made to determine the causes.

Conclusion

In all the foregoing, the company as a whole has been dealt with, but, obviously, greater accuracy will result if the records be split by districts or by states. This would call for more records and more detail, but the procedure would be similar.

Naturally the reader will say—"If the payments per accident reported prove to be steady, and if the relationship between the first few months' payments and the final incurred is also steady, then why not fix on a definite amount of 'incurred per accident reported,' and let it go at that, computing therefrom the total incurred, deducting the paid, and so establishing a reserve?" As a matter of fact, some such system as that *could* be used for the recent months when there is very little upon which to base estimates, and these tentative figures could be reviewed later, when more payments have been made.

We are finding this system an aid in our own work, and if other companies experiment with it, the Society's Committee on Compensation Reserves will doubtless be glad to know the results, so that experience with this and the other plans may be grouped, and a report issued.

EXHIBIT NO. 1

TOTAL AMOUNT OF INDEMNITY PAID EACH MONTH FOR THE ACCIDENTS REPORTED IN THE SEVERAL MONTHS AS SHOWN

(Entered from machine tabulations. Separate similar sheets for Medical and Death.)

	Month in which Accident was Reported—Year 192											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Number of Accidents	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Month of Payment 192												
January	$											
February	$	$										
Cumulative	$	$										
March	$	$	$									
Cumulative	$	$	$									
April	$	$	$	$								
Cumulative	$	$	$	$								
May	$	$	$	$	$							
Cumulative	$	$	$	$	$							
June	$	$	$	$	$	$						
Cumulative	$	$	$	$	$	$						
July	$	$	$	$	$	$	$					
Cumulative	$	$	$	$	$	$	$					
August	$	$	$	$	$	$	$	$				
Cumulative	$	$	$	$	$	$	$	$				
September	$	$	$	$	$	$	$	$	$			
Cumulative	$	$	$	$	$	$	$	$	$			
October	$	$	$	$	$	$	$	$	$	$		
Cumulative	$	$	$	$	$	$	$	$	$	$		
November	$	$	$	$	$	$	$	$	$	$	$	
Cumulative	$	$	$	$	$	$	$	$	$	$	$	
December	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
192												
January	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
February	$	$	$	$	$	$	$	$	$	$	$	$
Continued Until The Final Incurred	$	$	$	$	$	$	$	$	$	$	$	$

EXHIBIT NO. 1-A

(Compiled from data in Exhibit No. 1)

TOTAL AMOUNT PAID (INDEMNITY ONLY) FOR EACH 12-MONTHS-ENDING PERIOD—

That is, add together the money paid for the first month payments made in Jan. to Dec. inclusive for the accidents reported in the same months, then the cumulative first and second months payments on the same group of accidents; then the cumulative first and second and third months payments on the same group of accidents, and so on. Then take the first month payments made in Feb. to Jan. inclusive for the accidents reported in the same months; then the cumulative for first two months, first three months, etc.

(Separate similar sheets for Medical and Death)

	12-Month-Ending Periods in which Accidents were Reported											
	Jan. to Dec.	Feb. to Jan.	Mar. to Feb.	Apr. to Mch.	May to Apr.	June to May	July to June	Aug. to July	Sept. to Aug.	Oct. to Sept.	Nov. to Oct.	Dec. to Nov.
Number of Accidents Reported	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
12-month period of payment												
First Month	$	$	$	$	$	$	$	$	$	$	$	$
Second Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Third Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Fourth Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Fifth Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Sixth Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Seventh Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Eighth Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Ninth Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Tenth Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Eleventh Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Twelfth Month	$	$	$	$	$	$	$	$	$	$	$	$
Cumulative	$	$	$	$	$	$	$	$	$	$	$	$
Continued Until the Final Incurred	$	$	$	$	$	$	$	$	$	$	$	$

EXHIBIT NO. 2

(Compiled from Data in Exhibit No. 1)

The Total Amounts Paid (Indemnity only) Shown as a Ratio to a Selected Base as 100%	100% for first month's payments	$
	100% for first two months' payments	$
	100% for first three months' payments	$
	100% for first four months' payments	$
	etc. until	
	100% for Final Incurred	$

(Separate similar sheets for Medical and Death)

	Month in Which Accidents Were Reported—Year 192											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
First month's payments.......	%	%	%	%	%	%	%	%	%	%	%	%
First two months' payments...	%	%	%	%	%	%	%	%	%	%	%	%
First three months' payments..	%	%	%	%	%	%	%	%	%	%	%	%
First four months' payments...	%	%	%	%	%	%	%	%	%	%	%	%
First five months' payments...	%	%	%	%	%	%	%	%	%	%	%	%
First six months' payments....	%	%	%	%	%	%	%	%	%	%	%	%
First seven months' payments..	%	%	%	%	%	%	%	%	%	%	%	%
First eight months' payments..	%	%	%	%	%	%	%	%	%	%	%	%
etc. until												
Final incurred................	%	%	%	%	%	%	%	%	%	%	%	%

EXHIBIT NO. 2-A

(Compiled from Data in Exhibit No. 1-A)

The Total Amounts Paid (Indemnity Only), for 12-months ending periods, shown as a ratio to a selected base as 100%	100% for first month's payments	$
	100% for first two months' payments	$
	100% for first three months' payments	$
	100% for first four months' payments	$
	etc. until	
	100% for Final Incurred	$

	12-Months' Periods in Which Accidents Were Reported											
	Jan. to Dec.	Feb. to Jan.	Mar. to Feb.	Apr. to Mar.	May to Apr.	June to May	July to June	Aug. to July	Sept. to Aug.	Oct. to Sept.	Nov. to Oct.	Dec. to Nov.
First month's payments.......	%	%	%	%	%	%	%	%	%	%	%	%
First two months' payments...	%	%	%	%	%	%	%	%	%	%	%	%
First three months' payments..	%	%	%	%	%	%	%	%	%	%	%	%
First four months' payments...	%	%	%	%	%	%	%	%	%	%	%	%
First five months' payments...	%	%	%	%	%	%	%	%	%	%	%	%
etc. until												
Final Incurred..............	%	%	%	%	%	%	%	%	%	%	%	%

(Separate similar sheets for Medical and Death)

EXHIBIT NO. 3

(Compiled from data in Exhibit No. 1)

RATIO OF LOSS PAID (INDEMNITY ONLY) EACH MONTH, TO THE FINAL INCURRED

(Separate similar sheets for Medical and Death)

	Month in which accident reported—year 192												The base month as per Exhibit No. 2
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Paid in first month.	%	%	%	%	%	%	%	%	%	%	%	%	%
Paid in first two months........	%	%	%	%	%	%	%	%	%	%	%	%	%
Paid in first three months........	%	%	%	%	%	%	%	%	%	%	%	%	%
Paid in first four months........	%	%	%	%	%	%	%	%	%	%	%	%	%
etc. to the													
Final Incurred......	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

EXHIBIT NO. 3-A

(Compiled from data in Exhibit No. 1-A)

RATIO OF LOSS PAID (INDEMNITY ONLY) EACH MONTH TO THE FINAL INCURRED FOR PERIODS OF 12-MONTHS-ENDING

(Separate similar sheets for Medical and Death)

	12-Months-Ending periods in which Accidents were Reported												The base period as per Exhibit No. 2-A
	Jan. to Dec.	Feb. to Jan.	Mar. to Feb.	Apr. to Mar.	May to Apr.	June to May	July to June	Aug. to July	Sept. to Aug.	Oct. to Sept.	Nov. to Oct.	Dec. to Nov.	
Paid in first month.	%	%	%	%	%	%	%	%	%	%	%	%	%
Paid in first two months........	%	%	%	%	%	%	%	%	%	%	%	%	%
Paid in first three months........	%	%	%	%	%	%	%	%	%	%	%	%	%
Paid in first four months........	%	%	%	%	%	%	%	%	%	%	%	%	%
etc. to the													
Final Incurred.....	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

The percentages shown in these Exhibits will in large measure depend upon the reserves. In comparison with the ratios shown for the base month, and with the recent trends, a check will be available as to the correctness or otherwise of the reserve.

EXHIBIT NO. 4

(Compiled from data in Exhibit No. 1)

AMOUNT OF LOSS PAID (INDEMNITY ONLY) PER ACCIDENT REPORTED

(There would be separate similar sheets for Medical and Death)

	Month in which accident reported—Year 192												The base month, as per Exhibit No. 2
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Average amounts:—													
Paid in first month.	$	$	$	$	$	$	$	$	$	$	$	$	$
Paid in first two months........	$	$	$	$	$	$	$	$	$	$	$	$	$
Paid in first three months........	$	$	$	$	$	$	$	$	$	$	$	$	$
Paid in first four months........	$	$	$	$	$	$	$	$	$	$	$	$	$
etc. up to													
Final Incurred.....	$	$	$	$	$	$	$	$	$	$	$	$	$

EXHIBIT NO. 4–A

(Compiled from data in Exhibit No. 1–A)

AMOUNT OF LOSS PAID (INDEMNITY ONLY) PER ACCIDENT REPORTED

On 12-Months-Ending Basis

(There would be separate similar sheets for Medical and Death)

	12-Months-Ending Periods in which Accidents were Reported												The base month, as per Exhibit No. 2-A
	Jan. to Dec.	Feb. to Jan.	Mar. to Feb.	Apr. to Mar.	May to Apr.	June to May	July to June	Aug. to July	Sept. to Aug.	Oct. to Sept.	Nov. to Oct.	Dec. to Nov.	
Average amounts:–													
Paid in first month.	$	$	$	$	$	$	$	$	$	$	$	$	$
Paid in first two months........	$	$	$	$	$	$	$	$	$	$	$	$	$
Paid in first three months........	$	$	$	$	$	$	$	$	$	$	$	$	$
Paid in first four months........	$	$	$	$	$	$	$	$	$	$	$	$	$
etc. up to													
Final Incurred.....	$	$	$	$	$	$	$	$	$	$	$	$	$

EXHIBIT 5
FINAL SUMMARY
COMPENSATION EARNED PREMIUM, ACCIDENTS, AND INCURRED LOSSES
For 12-Months-Ending Periods—Based on Review of Reserves Dated 192

*These two columns figured to the base of Calendar Year 1923=100%

Period	No. of Accidents	Total Incurred	Incurred per Accident	4 Months' Payments		% 4 Mos. Paid to Total Incurred	Earned Premium	Loss Ratio
				Per Accident	Total			
Indemnity			*	*				
Dec. 31, 1923.......			100.00	100.00		42.05		
Dec. 31, 1924.......			104.46	99.91		40.25		
Dec. 31, 1925.......			104.72	100.00		40.19		
Dec. 31, 1926.......			106.45	100.53		39.73		
June 30, 1927.......			107.60	98.69		38.60		
Dec. 31, 1927.......			112.72	98.95		36.94		
June 30, 1928.......			118.14	101.31		36.09		
Medical								
Dec. 31, 1923.......			100.00	100.00		53.18		
Dec. 31, 1924.......			105.39	108.32		54.68		
Dec. 31, 1925.......			107.89	118.21		58.29		
Dec. 31, 1926.......			110.39	115.68		55.73		
June 30, 1927.......			107.63	117.01		57.83		
Dec. 31, 1927.......			107.70	127.38		62.86		
June 30, 1928.......			126.62	135.95		57.08		
Death								
Dec. 31, 1923.......			100.00	100.00		2.46	The Death losses and payments are figured here per total accident—they may be worked out, also, on the "per death" basis.	
Dec. 31, 1924.......			84.63	150.00		4.10		
Dec. 31, 1925.......			72.13	121.43		3.76		
Dec. 31, 1926.......			107.43	128.57		2.77		
June 30, 1927.......			97.13	121.43		2.76		
Dec. 31, 1927.......			107.09	164.29		3.57		
June 30, 1928.......			108.11	214.29		4.74		

EXHIBIT 5—*Continued*

COMPENSATION EARNED PREMIUM, ACCIDENTS, AND INCURRED LOSSES FINAL SUMMARY

For 12-Months-Ending Periods—Based on Review of Reserves Dated 192

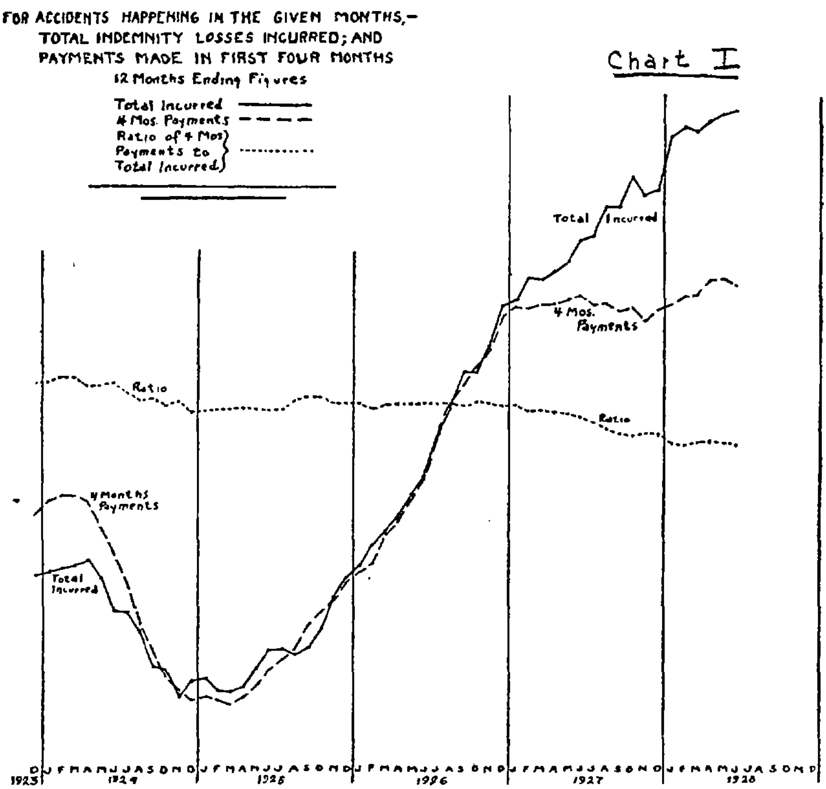
*These two columns figured to the base of Calendar Year 1923=100%

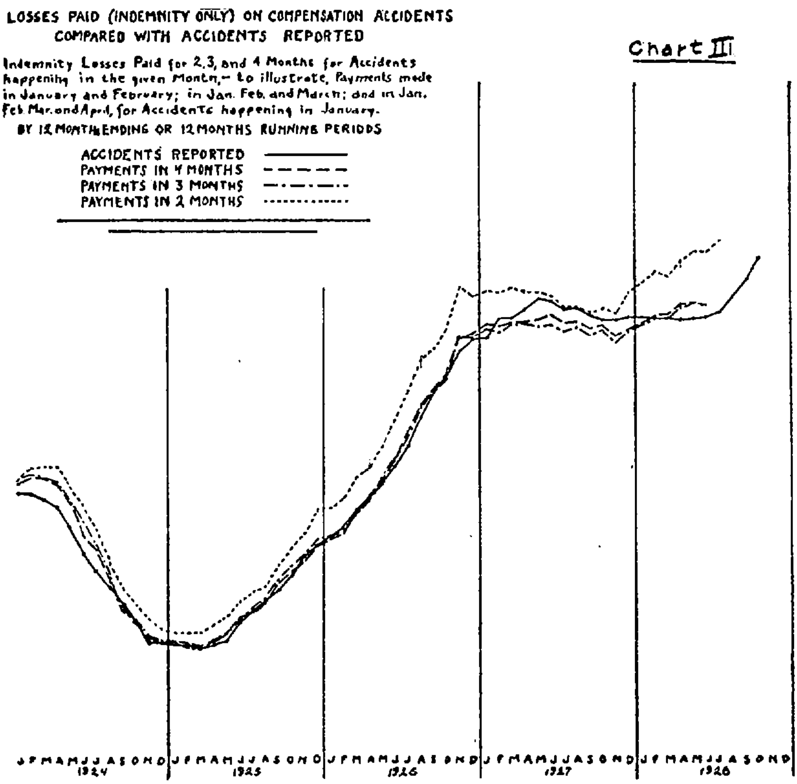
Period	No. of Accidents	Total Incurred	Incurred per Accident	4 Months' Payments		% 4 Mos. Paid to Total Incurred	Earned Premium	Loss Ratio
				Per Accident	Total			
Total			*	*				
Dec. 31, 1923.......			100.00	100.00		40.80		
Dec. 31, 1924.......			102.34	103.78		41.38		
Dec. 31, 1925.......			101.77	107.76		43.20		
Dec. 31, 1926.......			107.83	107.06		40.50		
June 30, 1927.......			106.33	106.50		40.85		
Dec. 31, 1927.......			110.43	111.29		41.11		
June 30, 1928.......			119.64	116.58		39.76		

LOSS PAYMENTS, AND RESERVE BALANCES RESULTING FROM THE ABOVE

Period	Total Payments for 12-Mo-Ending				Reserve Balance end of Period				Reserve + Payments			
	Indem.	Med.	Death	Total	Indem.	Med.	Death	Total	Indem.	Med.	Death	Total

This latter section is for the purpose of comparing the payments, on all years of issue, in any given 12-months period, with the reserve, on all years of issue, outstanding at end of the same period. There seems to be a degree of constant relationship, although closer in the Indemnity than in the Medical and Death.


FOR ACCIDENTS HAPPENING IN THE GIVEN MONTHS,—
TOTAL INDEMNITY LOSSES INCURRED; AND
PAYMENTS MADE IN FIRST FOUR MONTHS
12 Months Ending Figures
Chart I
Total Incurred
4 Mos. Payments
Ratio of 4 Mos. Payments to Total Incurred
Ratio
4 Months Payments
Total Incurred
4 Mos. Payments
1923
1924
1925
1926
1927
1928


LOSSES PAID (INDEMNITY ONLY) ON COMPENSATION ACCIDENTS
COMPARED WITH ACCIDENTS REPORTED
Chart III
Indemnity Losses Paid for 2,3, and 4 Months for Accidents happening in the given Month,— to illustrate, Payments made in January and February; in Jan. Feb. and March; and in Jan. Feb. Mar. and April, for Accidents happening in January.
BY 12 MONTHS ENDING OR 12 MONTHS RUNNING PERIODS
ACCIDENTS REPORTED
PAYMENTS IN 4 MONTHS
PAYMENTS IN 3 MONTHS
PAYMENTS IN 2 MONTHS
J F M A M J J A S O N D
1924
1925
1926
1927

COMPENSATION LOSSES PAID — INDEMNITY ONLY

To Show the Ratio of Losses Paid to Final Incurred at Various Points

Chart III

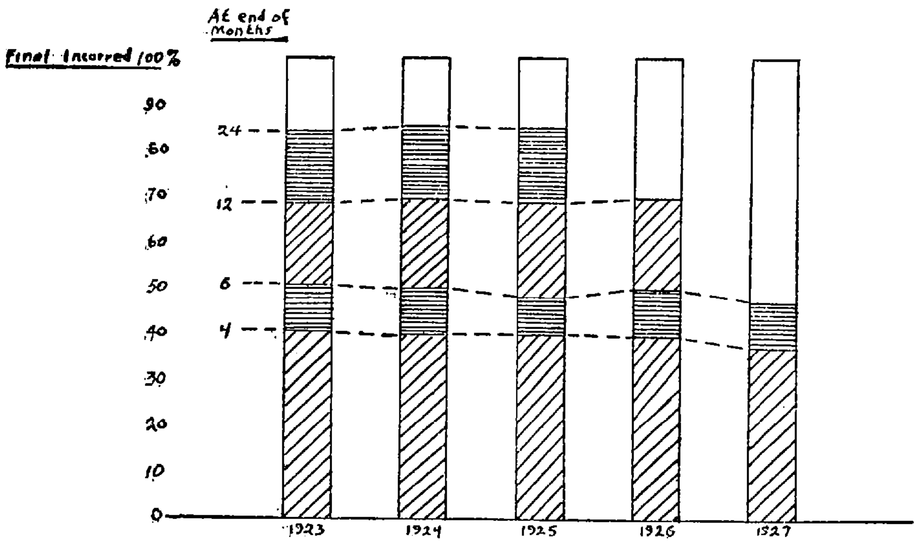


Chart IV

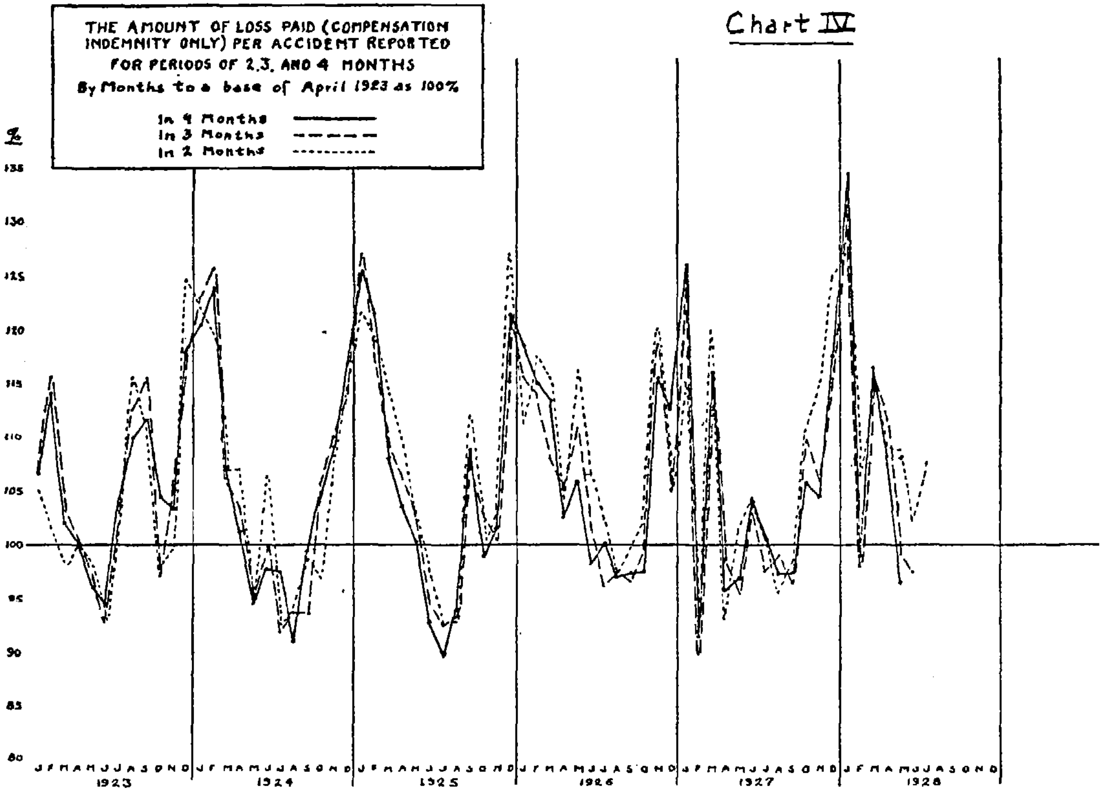
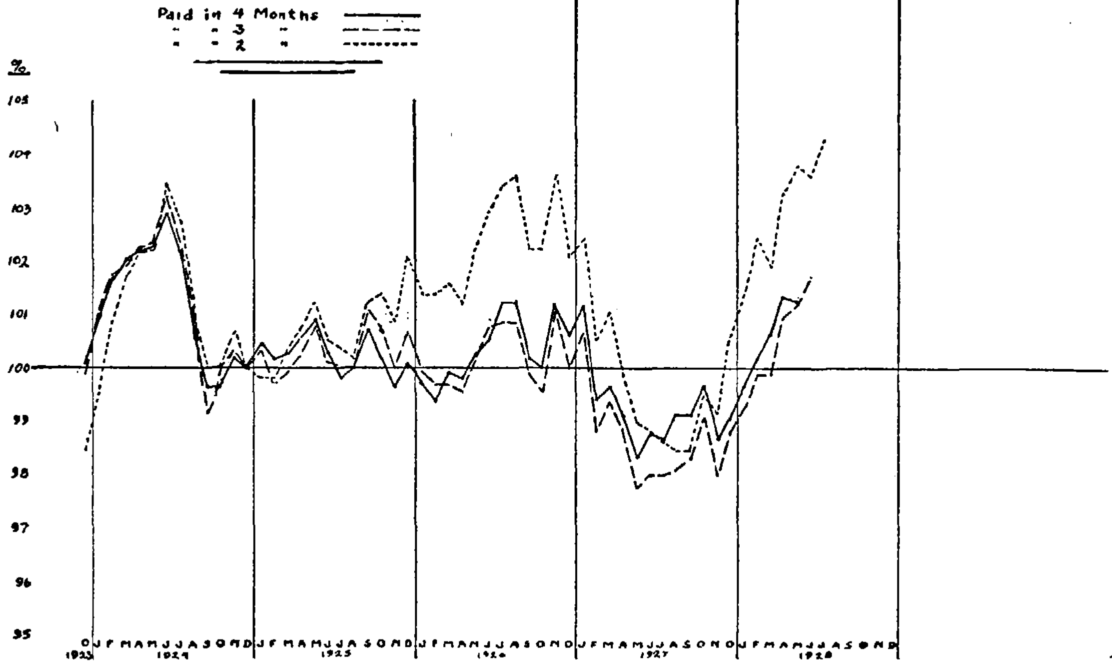

THE AMOUNT OF LOSS PAID (COMPENSATION INDEMNITY ONLY) PER ACCIDENT REPORTED
FOR PERIODS OF 2, 3, AND 4 MONTHS
By Months to a base of April 1923 as 100%
In 4 Months
In 3 Months
In 2 Months
%
135
130
125
120
115
110
105
100
95
90
85
80
J F M A M J J A S O N D
1923
1924
1925
1926
1927
1928

Chart V

THE AMOUNT OF LOSSES PAID (COMPENSATION INDEMNITY ONLY) PER ACCIDENT REPORTED
FOR PERIODS OF 2, 3, AND 4 MONTHS
By 12 Months Ending or 12 Months Running Periods
To a Base of the Calendar Year 1924 as 100%



CLAIMS

BY

CHARLES DECKELMAN*

MANAGER, HOME OFFICE CLAIM DEPARTMENT, THE TRAVELERS INSURANCE COMPANY

We are told that a number of years ago the French explorer, DeMorgan, made extensive excavations at Susa, the capital of ancient Persia. He removed layers of earth containing ruins of Persian palaces, and also discovered a stone monument inscribed with the code of Hammurabi. This king ruled Babylonia about 2000 B. C. He united all of the little city-states into one kingdom with its capital at Babylon. He proved himself a statesman and devoted himself to the welfare of his subjects. He repaired old canals and constructed new ones, restored the old temples, and above all gave the country a uniform system of laws. Probably some of these laws had been long established by custom and he merely codified such customs and earlier decisions into a system, so that justice might be administered alike throughout the realm. The laws were then inscribed upon stone slabs and erected at certain places where the people could read them, and those who felt themselves injured might know what redress lay open to them.

Their discovery is most important for the history of ancient Babylonia, as it has enabled scholars to reconstruct the standards of justice current when the country came into its first strength and power. They without doubt furnished the basis for the legal code throughout the history of Babylonia, and without some knowledge of them we could never have been able to understand the civilization of the country as it is known today.

The chief set up of Hammurabi's code is almost entirely civil and criminal. There was still the old tribal "group responsibility", that is, the children often had to suffer for the sins of the father. Distinction, however, was made between intentional and unintentional injury. An eye for an eye and a tooth for a tooth was demanded by the code of Hammurabi. Some of the laws ran about as follows:

If a man has knocked out the eye of a patrician, his eye shall be

*This paper presented by invitation of the Program Committee.

knocked out. If he has broken the limb of a patrician, his limb shall be broken. If he has knocked out the eye of a plebian or has broken the limb of a plebian, he shall pay one mana of silver.

If a patrician has knocked out the tooth of a man that is his equal, his tooth shall be knocked out. If he has knocked out the tooth of a plebian, he shall pay one third of a mana of silver.

If a man has struck another in a quarrel and caused him permanent injury, that man shall swear, "I struck him without malice" and shall pay the doctor.

Theft at a fire was made a capital offense.

Fees of surgeons were graded by law. Injury which today would necessitate the payment of damages, in ancient Babylonia might even be punished with death.

That justice might be administered uniformly throughout the realm, courts were established in different cities with a court of appeals held in Babylon. Perjury and bribery were severely punished and in all there were some 280 laws.

We may conclude that the Babylonians had reached a high stage of morality when authentic history of their kingdom begins. Honesty, truth, fair dealing—these were demanded by the laws of the realm and penalties attached to crimes violating them.

Here then we have the first indication of a rule governing claims in that early period. As the countries progressed the laws were changed from time to time and so on through the old common law of England which prevailed in the United States down to our own time, which as you know has been the subject of decided changes in respect to claims for personal injuries and which changes were made necessary to more equitably meet present-day requirements. So we find today the rule of compensation as between employer and employee and the present rule for damages in respect to tort cases in general.

Insurance for personal liability was unknown in the very early days. Each wrongdoer who found it necessary to respond in money damages had to meet the result from his own resources, although the principles upon which insurance is founded may be traced back several centuries. Perhaps the earliest insurance known was of the marine character on ships and cargoes. This in all probability was followed by the fire form, then by the life form, then accident and health, and as industrial and commercial activities increased, the liability form became prominent, in connection with which, you gentlemen in your chosen profession as actuaries develop a fair basis for a premium rate in a scientific manner.

In conjunction with this branch of underwriting, which is a highly specialized service, the companies provide another service of distinction based on humanitarian motives, which is accident prevention. Millions of dollars are spent yearly in this commendable engineering undertaking, yet accidents will occur, and when they do occur, the resulting claims must be adjudicated in accordance with the law applying to the particular case.

Here then follows another important and very exacting service through the medium of claim administration. Now, how are the cases adjudicated? For illustration, let us review a workmen's compensation claim. The law provides a set schedule of money payments for accidents arising out of and in the course of the employment. It becomes the duty of the adjuster to very promptly gather certain information regarding the accident, such as the cause, the injury, the disability and the wage rate upon which the monetary allowance is based. All these items are necessary not only for company purposes, but for state requirements as well. Immediately upon the expiration of the waiting period, the adjuster should begin making the payments to which the beneficiary may be entitled and these payments should be made promptly and continuously during disability until the law has been fulfilled. The great importance of making payments promptly when due cannot be emphasized too strongly as it must be remembered that in all probability the only source of income available to the average beneficiary and his family is that provided by the compensation law.

These payments must be made properly regardless of where the beneficiary may be located. Beneficiaries will move from state to state and into foreign countries, but the adjuster must follow them until the case is completed. If neglected he, his company and the policyholder will be subject to the severest criticism.

Aside from the monetary obligation, it is necessary that an unfortunate injured worker having suffered injury should be afforded competent and efficient medical and surgical care in accordance with the requirements of the law, as it is highly important that such worker be returned to the industrial field in as good working condition as surgical skill will permit.

In certain cases questions arise which necessarily must be submitted to the state authorities entrusted with the administration of the law. The mere fact that a case is controverted should give the adjuster no justification for permitting it to remain inactive, and he should do all in his power to bring that case to an early determination. Delays are vexatious and if it should develop that the beneficiary is entitled to consideration any unnecessary delay will have deprived him of the benefits of the law for the time being.

These are a few of the important items entering into the service which the adjustor owes to the beneficiary and the community and by undertaking his work in a sympathetic, courteous, sincere and fair minded manner he will be contributing his share toward making the law of his state a complete success.

You may say that the procedure just outlined is fundamental. True. But nevertheless it is so important that it will bear repetition. An adjuster should have it constantly in mind. He should review it in the light of his own experience and exchange views upon it with his associates and others, always striving to develop improved and simplified methods of procedure. That makes for efficiency.

In liability cases as distinguished from compensation claims, the adjuster must be equally prompt, always bearing in mind that the important feature of the work of an adjusting staff is the fair and conscientious administration of claims on their individual merits. It is the responsibility and duty of the adjuster to legally and equitably fulfill each contract obligation; in fact, a review of a policy indicates that he is guided by the obligation of his company whereby it agrees in accordance with the terms of the policy—

To SERVE the policyholder by investigation, negotiation or settlement of claims.

To DEFEND for the assured suits seeking damages for injuries even though such suits are groundless, false or fraudulent, and

To PAY in any such defended suits all expenses incurred by his company, all cost taxed against the assured and such judgment as does not exceed the limit of his company's liability thereon.

The first step, therefore, is to render prompt service by a careful inquiry into the facts. There should be no delay in this respect as the actual facts become the determining factor of the equities, and obviously both the policyholder and the claimant are interested in having the facts determined at the earliest possible moment.

If the facts indicate that there was fault on the part of the policyholder, it becomes the duty of the adjuster to undertake disposition of the claim in paying what is reasonable and just in accordance with the merits. If on the other hand, the facts indicate that the policyholder was free from fault, or the claim is not founded on merit, the adjuster necessarily proceeds with his preparation to defend the policyholder. Obviously, the element of judgment and a spirit toward fair consideration of the facts, pro and con, enter into the problem, and whatever difficulties he may have in reaching an amicable understanding can be diminished only in degree by his efforts and sincerity of purpose in gathering accurate information in respect to the claim at the earliest possible moment and in the shortest possible time.

While the duty of the adjuster to refuse payment in an improper claim is as absolute as is the duty to pay a proper claim, he is nevertheless expected to be fair, open-minded and courteous at all times. He should hold himself in readiness to patiently review controverted issues with claimants or their representatives and whatever his conclusion may be, it should be founded on the merit of the case under consideration.

A friendly attitude should prevail at all times. An adjuster cannot hope to gain respect through cleverness or the circumvention of known facts by quibbling. He must deal fairly in accordance with merit based on actual facts and even though the claim under consideration may be non-meritorious, he should nevertheless extend to the claimant or his representative the utmost consideration and courtesy in his explanation of the circumstances.

If the adjuster will effectuate such administration of his work as will result in prompt and just settlement of all meritorious claims; if he will effectuate a service whereby false claims will be vigorously resisted and dishonest and unscrupulous practices will be discouraged and exposed, and if he will avoid unnecessary delays and lost motion, he will find that he is not only rendering good, efficient service to his company and its policyholders, but to the community as well.

CLAIMS

BY

HERBERT W. J. HARGRAVE*

MANAGER, CLAIM DEPARTMENT, NATIONAL BUREAU OF CASUALTY AND SURETY UNDERWRITERS

Insurance is the foundation and supplies the security of modern business. If the feeling of security which insurance gives to business was removed, the commercial structure would be seriously endangered.

What is the foundation of insurance but claims? Insurance is defined as "the act or system by or under which indemnity or pecuniary payment is guaranteed by one party or several parties to another party in certain contingencies upon specified terms." Again insurance is "a contract whereby one party, in consideration of a stipulated consideration or premium undertakes to pay a given sum or sums upon the occurrence of a certain contingency, as upon injury to one's person, or upon attaining a certain age, or upon one's death, or upon the destruction of one's property by fire or otherwise."

The contract of insurance is more than a certain grouping of words and sentences, it implies faith on the part of the policyholder. No one knowing a person to be absolutely irresponsible as to his obligations would willingly enter a contract with such party, no matter how carefully the written terms of the contract were set forth. The person in paying a premium for a hazard which he is unwilling or unable to assume himself buys a policy of insurance because of faith that upon the happening of the contingency the insurer will pay according to its undertaking or guarantee.

As the reason for insurance rests upon the possibilities of claims so the faith of a person in insurance is largely dependent upon the manner in which claims are handled when the contingency insured against arises. Many times the insured's sole personal contact with insurance and insurance companies is made when he has a claim himself or a claim is presented against him. An efficient and ethical claim department is a company's most able advertiser and business producer.

*This paper presented by invitation of the Program Committee.

Claims fall into two general classes, those where the assured is the one asking reimbursement and the other where a third party is asking remuneration for some act of omission or commission of the assured.

Concerning the first class of claimant, it is self-evident that the claim department must exhibit intelligence and extreme courtesy in all dealings with the claimant and see to it that exact justice is accomplished in a pleasant and upright manner. An assured whose claim is handled expeditiously and fairly in view of all the surrounding circumstances is a satisfied customer and a satisfied customer is universally recognized as the best advertisement for any business.

On the other hand, an honest assured, if harassed with detail, treated with suspicion and finally grudgingly paid, gets the idea that though it is necessary to have insurance, still the whole business is to be viewed with distrust. Thus is destroyed the most important element of his contract, faith. With claimants of this class the capable claim man is slow to openly evidence suspicion and only does so when all the facts tend to prove an abuse of confidence and an actual desire to defraud the institution the claim man represents.

Where an actual effort to defraud is evidenced, the claim man will continue to handle the matter courteously but will fearlessly point out the untenable position of the assured. A most peculiar psychology is that of the dishonest claimant assured. He may be one who prides himself upon his honesty and fair-dealing and often is a respected member of the community. Still, he may feel, that in getting something he is not entitled to or more than he is entitled to by altering the facts in order to bring the claim under the contract or padding the amount demanded, he is not doing anything he would consider to be reprehensible. This type of claimant assured works on the same principle or lack of principle that otherwise respected citizens do when they attempt to smuggle articles into the country. Usually, if tactfully handled, this person can be made to see the injustice of his position and becomes one of the better assured.

The second general class of claimants are those injured or damaged due to their own fault or negligence, the negligence of the assured or the combined negligence of both. These in turn may be further divided into several classes.

The honest, meritorious claimant whose person or property has been injured, damaged or destroyed. This person has his loss immediately and sometimes permanently without any fault of his own. To him the claim man owes the highest duty of immediate and fair investigation and prompt, cheerful settlement commensurate with his loss. It is also a claim man's duty to protect such a person from the selfish interests of those who would personally profit by the claimant's misfortune. Oftentimes, where a claimant has lost a member or the function of a part of his body, he cannot be fully restored to *statu quo*. Still in so far as is possible we do the next best thing by paying a sum of money to assist him to meet the needs and obligations of his life. Meritorious claims handled in a straightforward and impartial manner go a long way toward instilling the confidence and maintaining the faith that insurers are properly and equitably administering the huge funds submitted to their care.

The ignorant, misinformed claimant presents still a different problem. He is one who having received personal loss or damage has suffered it wholly or partially through his own act of omission or commission. This individual having suffered a loss will not and often cannot understand that his own errors are the prime factors of his condition. As was cited recently in one jurisdiction, there are people who have come to this country under a promise of personal liberty and they read into that promise the further promise to recompense them according to their own ideas of value, for all loss they may sustain without regard to fault. In other words, to them a policy of indemnity for legal liability is twisted to mean a direct promise to pay without regard to the various elements of the case. This notion is encouraged by individuals who prey upon and seek to handle the injured's claim. After getting the case, as it is called, these so-called representatives of the claimant pick out the weaknesses of the claimant's case and boldly or subtly corrupt the mind of the injured by embroidering or actually changing entirely the story of the happenings of the case. The injured's primary interest being in getting money for his hurts he does not attempt to scrutinize his own conscience nor the methods of his representatives.

This type of claim and claimant is the most difficult for the claim man. He may often wish to disregard strict application of legal principles involved and compromise the matter to partially recompense the injured. If he does so and if the injured is finally prevailed upon to accept the compromise, the injured instead of feeling happy and thankful for the partial reimbursement resents the fact that he did not get all his cupidity desired. This person often loudly proclaims the unjust and unfair attitude of the soulless corporation. If, on the other hand, the claim man stands upon the legal interpretation he is immediately confronted with altered testimony, rank perjury, prolonged disability, crooked medical testimony and juries liberal with other peoples funds. Thus he is oftentimes forced to pay sums many times what the case would have been worth if it were one of actual liability. If such case is won by the claimant he proceeds to abuse the company for holding him up so long and boasts as to how he put it over, thus tending to corrupt the minds of his hearers.

The last class, the outright fraud, the individual who deliberately manufactures a claim wherein there has never been any such occurrence, or where an occurrence absolutely no injury, has been, I am sorry to state, getting more numerous every year. It may seem inconceivable that persons would deliberately stoop to commit or suborn perjury, but it has been shown conclusively that a few members of the bar have gone so far as to deliberately manufacture claims that never happened and have brought suit thereon and collected judgments.

In these cases the attorneys, if they are cognizant of what is actually going on, and the claimants should be handled with vigor and dispatch. The aid of the public authorities should be promptly solicited and those involved brought to justice. Stamping out this sort of thing depends upon the alertness and perspicacity of the claim representatives and the earnest cooperation of criminal authorities when a case of indubitable fraud presents itself. Oftentimes it has seemed that the criminal authorities cared little whether insurers were mulcted of their monies by frauds and they, instead of cooperating, sometimes let the facts leak out and gave the cheat an opportunity to disappear or to rig up a defense. If ably prosecuted many times the juries would turn the offenders loose to resume their nefarious activities. Public and official sentiment are improving and realizing that this crime is as reprehensible as many others, effective steps have been taken to teach the fraud that his doings are dangerous to his liberty and are no longer to be tolerated.

The successful growth of the fraudulent claim needs many elements for its success; the dishonest claimant; the doctor who thinks so little of his oath as to excessively magnify the extent and permanency of an injury or to conspire to put before the jury an injury which is non-existent; the lawyer that will engineer the whole fabrication and whip it into shape for presentation at court; the sympathetic unreasoning juror, the type that is liberal with the things of others and is unwilling or incapable of carefully weighing the evidence so that substantial justice may be done as between both parties; the perjured testimony of supposedly disinterested witnesses; and last the jurist willing to sit by and allow rank perjury to go unpunished and inconceivable, illogical testimony to go in as evidence.

We all expect to pay fairly for any commodity, and so with insurance. It is unfair to the great bulk of honest persons that they should be saddled with vastly increased costs due to the depredations of the dishonest claimant, witness, doctor and lawyer. Exact justice cannot humanly be done in all cases but if the public and courts show a more vigorous dissatisfaction with the larcenous attempts of the individuals above mentioned, it will certainly redound to the benefit of the whole people.

Some may ask why the claim man if he knows his job has not remedied these conditions. Claim men for years have been fighting a desperate but losing battle against fraud. If the public and the courts will not actively assist in stamping out fraud, the claim man is practically powerless. If he won't settle resort is made to the courts and many times he pays immeasurably more than was demanded.

Some have criticized the claim man for settling for so-called nuisance values. By "nuisance value" is meant a payment on a case clearly of no merit but made to secure a release and the closing of a suit. Up to very recently practically no case was a case of no liability if it came into the hands of the many of the professional negligence attorneys. The facts as given by the plaintiff and his witnesses were so twisted, distorted and enlarged upon that they were bound to make a question of fact for the jury. The jury knowing that an insurance company, corporation or responsible individual was involved would deliberately disregard the judge's charge, leave their common sense outside their deliberations and march proudly in with a verdict for plaintiff in an unreasonable amount.

Another feature in unjust verdicts is the desire of the responsible citizen to avoid jury duty. Still many times this same person is a litigant and compelled to sit by and see his case decided by those of little intelligence and no discernment.

Nothing worth while can be accomplished without the honest and active co-operation of all the necessary parties to the doing of the thing. Our business is one essentially of service and when the public mind is satisfied that we are administering our trust in an efficient and scrupulously honest manner, we may no longer fear state monopoly or any of the other panaceas offered the public by self-seeking individuals or classes of individuals.

AIRCRAFT INSURANCE

BY

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Nine years ago Mr. W. G. Cowles of the Travelers Insurance Co. addressed this Society on the subject of aircraft insurance. His paper was such a complete outline of the field and indicated such a sound view of the future that I am tempted to confine my remarks to bringing it up to date.

In 1919 his statement was correct that the field for aviation insurance was yet to be developed. That is not true today. Even the most conservative in our midst believe that we are past the threshold of the aerial age. The yearly increase since 1925 in airplane production, airway mileage, safe airports and landing fields and mileage flown has been marked. For every airplane produced then there are now four produced; for every mile of airway there are now two; for every airport there are now five; where there was one landing field there are two; and for every mile flown there are now five miles. Still more to the point is the fact that many things indicate a continuance and even a rapid acceleration of this development.

Aeronautical transportation is identical with other forms of transportation in that its development is dependent upon the forces of supply and demand. I have given you some indications of the rapidly growing supply phases of the problem. These supply features are themselves an indication of sound demand. After a certain amount of available speculative funds have been used up, the increasing flow of capital to the various branches of an industry is a sign that that industry is already a part of our economic order. This is the case with air transportation.

In addition to this somewhat theoretical consideration we have unmistakable signs of increased demand. It is more difficult to get a promise of early delivery of one of the twelve passenger three-motored Fokker airplanes than it is to get immediate delivery of a new model Ford automobile. Despite the fact that these airplanes cost $60,000 and must be well-filled pretty consist-

*This paper presented by invitation of the Program Committee.

ently to be paying propositions, the Fokker Aircraft Company is being forced onto a production basis as rapidly as it can safely go.

The Pratt and Whitney Engine Company has just proudly announced its promise to deliver thirty engines monthly to the Ford airplane factory instead of the customary fifteen monthly. These so-called Wasp and Hornet engines cost in the neighborhood of $7,000 each and go into all-metal airplanes that cost over $60,000.

There are now a number of strictly aeronautical engineering concerns in this country. Their time is fully employed in remunerative consulting and guiding work.

Last August the new five-cents per ounce air mail rate went into effect. The result was that practically all of the air mail operators had to refuse the small number of passengers they had been prevailed upon to carry and were compelled to devote their entire equipment to the handling of the greatly increased mail. The Carribbean countries visited by Lindbergh will soon receive *all* first-class mail from the United States by air. The Pan-American Airways was awarded this post office contract and is already receiving delivery on some twenty-five or thirty three-motored airplanes.

I believe that you will agree with me that there is some careful reasoning behind the present bullish stock market attitude toward aeronautical stocks. Much of this is speculative, it is true; but a good part of it is based on sound logic.

The field for aviation insurance is a fact, not a dream. The progressive underwriting element has recognized this. The disastrous underwriting years of 1919, 1920 and 1921 have been forgotten. Those years saw the organization of the National Aircraft Underwriters Association by the Home Insurance Company, the Fireman's Fund, the Aetna Life, the New York Fire, the North British and Mercantile Insurance Company, and others. Those years also witnessed its practical disbandment because of lack of interest. Lack of interest was caused by discouraging loss ratios, in some cases as high as two hundred percent.

The Travelers Insurance Company alone persevered through the "lean years" of aviation, confining its activity to the liability lines. In 1926 the Independence Companies of Philadelphia entered the deserted property field and provided complete coverage, property and personal as well as liability. It is rumored that from eighty percent to ninety percent of each risk accepted by these companies is reinsured at Lloyds of London.

These companies enjoyed a practical monopoly of the business because they followed more or less consistently the common marine practice of "all of the business or none." The Travelers' underwritings were confined to those aircraft operators who were content to insure only against the liability hazards or to those operators dealing through the one or two brokers influential enough to persuade certain fire and marine companies to write fire and tornado coverage on airplanes as pure ground risks.

Last spring the Travelers extended their activities to cover passenger liability. A new underwriting group, The Transportation Insurance Companies, entered the field at the same time and was welcomed most heartily. Brokers now enjoyed the advantage of having two sources for "all-coverage" rates. Rates were materially reduced. The operators began to feel that possibly they were not "working only for the insurance people," as a number of them expressed it.

In the summer another group began active underwriting. The United States Aviation Insurance Group was organized and appointed the United States Aviation Underwriters as agents. Four old casualty companies and four old fire companies compose this group and share each risk in a predetermined proportion.

The few aviation brokers were soon kept busy protecting their old accounts from the onslaughts of general brokers suddenly awakened to the insurance possibilities of this newest form of transportation. Before 1928 the brokers specializing in aviation insurance had considered their most difficult problem to be that of getting insurance markets. During the present year this situation has changed somewhat. It has now become a real problem to prove to the newer operators that years of experience in aviation brokerage is of real value to them. This situation has eased up for them somewhat because the new underwriters have leaned more or less heavily on the brokers familiar with the business.

As you doubtless know, practically all aviation rates are the results of pure judgment. Workmen's compensation rates are a possible exception. Where judgment is so important a factor, experience is at a premium. There are comparatively few individuals combining broad contacts, aviation knowledge and thorough grounding in insurance. The value of this unusual combination is enabling the aviation insurance specialist to hold his own against the local broker, sometimes over a distance of three thousand miles.

There are a number of features of aviation underwriting that seem to point to the continued importance of the specialist. First, the risks themselves are very unstandardized. Second, the underwriter must depend to a great extent on hearsay and second-hand knowledge. Third, the coverages, while more or less standardized, are very flexible. This makes it most difficult for the smaller, inexperienced broker to compete on the large accounts where flexibility can be demanded.

Let us consider, briefly, the policy conditions which are peculiar to this form of insurance. In addition, probably you will be interested in some of the underwriting problems involved in the various coverages.

There are certain general considerations in the case of all coverages. I think we might list these as the pilot, the plane itself, the engine, and the territory of operations. There have been attempts made to analyze these to determine their relative importance. Probably it is the consensus that the pilot is the most important element from the standpoint of the underwriter.

Various groups of statistics have been presented; some of which show the pilot responsible for thirty percent of the accidents, others for forty percent, and others for even as high as sixty percent. It is probably safe to say that the pilot is responsible for about half of the accidents.

When we get into a discussion of the responsibility for accidents, though, we get into an involved problem. An accident is seldom due to one cause. A pilot's engine goes dead two or three thousand feet in the air. Probably his gliding area is about twenty thousand feet. That pilot should be able, unless he is over the congested part of a city, to find a safe landing place in twenty thousand feet. He comes down and crashes. What is the cause of the accident—the engine going dead or the inefficiency of the pilot?

I am reminded of Clarence Chamberlain's wonderful feat of landing in the drillyard of the Eastern Penitentiary. And I believe he even "took off" there. If you have ever visited penitentiaries (as students of sociology, I hope) you know that those drillyards are not very large.

I should like to take up these general rating considerations one by one. Formerly the pilot was considered individually by the underwriter. Some underwriters set up standards of forty hours of solo flying, always, however, wanting to know the name of the pilot and his experience. Now we have an Aeronautics Branch in the Department of Commerce which tests the pilots and licenses and classifies them.

They are classified as private pilots, industrial pilots, limited commercial pilots and transport pilots. Private pilots must have ten hours of solo flying before they can take the tests; industrial pilots, fifty hours of flying; and limited commercial and transport pilots, two hundred hours of flying.

That gives us something of a basis. But even with these requirements and the strict examinations that are given to the pilots by the Aeronautics Branch of the Department of Commerce, the underwriters are not yet willing to take any transport pilot. They probably are justified in this, especially when you consider the different types of planes that are flown today. One pilot may be a good risk on a single-engine plane and be a very poor risk on a tri-motored plane. Underwriters even go so far as to consider pilots possibly good risks on tri-motored Fokkers and poor risks on tri-motored Fords until they have had some experience with the Ford planes.

Next we consider the planes themselves. Formerly it was a question of "What sort of a plane is it? What has been its particular maintenance history?" and a number of similar considerations. Now we have all planes which are engaged in interstate commerce examined and licensed by the Department of Commerce.

I am afraid that much of this will be repetition for you men who have been reading the newspapers, although possibly summing it up in this way will be of help.

That doesn't mean that every plane that you can fly at the various landing fields has been examined and licensed by the Department of Commerce. A plane might even have an official looking number painted on it and still not have been examined. Planes not engaged in interstate commerce must have identification numbers, that is all. If the state within which this plane is going to operate does not have strict regulation and strict inspection of planes, possibly that plane that holds itself out more or less as a common carrier is not a very safe plane in which to ride.

Let us briefly consider the engines. We have, of course, different types of engines. Back as early as 1920 and '21 the National Aircraft Underwriters Association attempted to classify engines according to their susceptibility to fire or according to their importance in causing fires. But the spread of available data was not great enough then, and the spread probably is not great enough now.

The underwriters are now mainly interested in engines to see whether they are water-cooled or air-cooled. Usually they consider the air-cooled engine a far better risk because of the fact that there is relatively little plumbing. Plumbing getting out of order is one of the main causes of engine failure. We do not have that problem to such a great extent with the air-cooled engine. We have a number of different air-cooled engines; and some underwriters, of course, are prejudiced for one over against the other.

We are also interested in engines from the standpoint of depreciation when we get into some of the property coverages. There must be separate depreciation on engines as over against the planes. You are particularly concerned with casualty insurance, but possibly you will be interested to know that water-cooled engines are considered to depreciate about twice as rapidly as air-cooled engines. Some underwriters now depreciate water-cooled engines over seven or eight hundred hours of flying and give air-cooled engines as high as fifteen hundred hours of life before they consider them entirely used up.

We can all recall that Lindbergh's plane flew close to four hundred hours before it was overhauled. When it was taken down there were practically no repairs necessary. As a matter of fact, we do not know the life of an airplane engine. It was very interesting to go to the Philadelphia Navy Yard and go through the airplane factory there. They have a number of compartments along a corridor, in each one of which is an engine being run until it refuses to run any longer. They are attempting to test the life of an engine and, also, to find out what causes the engine to give way.

The territory of operations of a plane was originally considered rather important. I think it is becoming of less importance in the underwriter's thoughts. Most coverages are restricted to the United States, sometimes within fifty miles of the international border. We can hardly restrict the territory of operations of an airplane. In 1919, '20 and '21 there were many policies written requiring the planes to keep within gliding distance of the field. Of course, that is not feasible now with the cross-country flying so common.

Now, I should like to consider the various coverages individually and just indicate some of the more or less interesting features of the coverages themselves and some of the things which the underwriters take into consideration.

Fire insurance. We have two types, on the plane and on the hangar. There are at least two types of fire insurance on the plane itself: Fire under all circumstances, and fire on the ground only. Until last Spring there was some question as to whether fire losses following crash were covered by "fire under all circumstances" coverage. Now the underwriters specifically exclude fire that can be traced at all to crash. This involves the old insurance problem of proximate cause, and it certainly seems warranted that any fires that can be traced to crash, be excluded from the fire coverage.

However, "fire under all circumstances" coverage still gives rise to some difficult problems. Not very long ago one of the pilots flying the Pitcairn mail route had a forced landing. Incidentally, it was his third forced landing without serious injury in three months. He certainly maintained the reputation of the Pitcairn planes of being able to make forced landings without killing the pilot. This forced landing did not do much damage to the plane. The pilot took the mail out of the plane and walked quite a distance. I think that he claimed that it took him about four or five minutes to get to the house in the distance. Going into the house he asked directions to the nearest postoffice. Someone said, "Your plane is burning out there." He turned around, and, sure enough, the plane was in flames. When he got back, there wasn't much left of the plane. Now, what sort of a loss was that? Was it a fire loss or was it a crash loss?

The rate on fire insurance for all circumstances varies from as low as two and a half percent to four and four and a half percent, largely determined by the type of plane, and the housekeeping of the operator, and partly by the contents rate of the hangar in which the plane is stored. Of course, you know that the contents rate is set by the local fire underwriters.

One underwriter said just the other day that he did not think that any plane should be underwritten at less than three percent of the value of the plane. He was asked, "Does that apply to all-metal planes?" That question was answered just two days ago. On Monday night a new twenty-passenger plane of the Keystone Aircraft Company was insured at five o'clock. On Tuesday, at four o'clock, it burned—an eighty thousand dollar risk. The underwriters wished that that insurance had been delayed for twenty-four hours. When they went out to inspect the plane, the wings had been covered with the ordinary cotton duck and painted with dope, but the entering edge of the wing, back to the main beam, was made of dural, or duraluminum. The inspector just yesterday showed me a piece of that dural which had been through the fire. You can take it like this, and it crumples in your hand just like a piece of charred paper.

The hangar is more or less of a local fire insurance problem, so we will not consider that.

One of the other property coverages is tornado insurance. This is not so important in this part of the country, but when you get down to risks such as the Pan-American Airways with planes flying to Cuba, to Porto Rico and down to Central America and Mexico, the tornado coverage is very important. The underwriters were prone to refuse it at first. But the brokers have control of the other more acceptable coverages and *they* now say, "All or none, including the tornado coverage." And if the business is good, they even get the tornado coverage for as low as one-half percent.

Crash insurance is probably the most interesting property coverage. The deductible is usually very high, in some cases as high as ten percent. That results in quite some self-insurance in the case of large, costly transport planes.

The other day a plane was to be christened by Mrs. Coolidge. The ship was not ready for delivery. Another had to be borrowed. The operator lending the other plane demanded crash insurance. It was placed with a six thousand dollar deductible. In the test flight, just before the plane was to be handed over to the operators arranging the christening ceremony, the plane nosed over and crashed the propeller, wing, and damaged some of the tail. The damage in that case was only four thousand dollars. The borrowers were wishing that the deductible had been somewhat lower.

Constructive total loss is a more or less common marine form of coverage and is not uncommon in aviation but is often unsatisfactory. The usual percentage is eighty-five which means that the underwriter pays the claim if the loss gets up to eighty-five percent. In other words, it must be practically a total loss. The average operator doesn't know much about insurance. He thinks it is rather unfair to have paid eight percent in premiums and not collect anything if the loss only equals about eighty-two percent of the value of the plane. Probably the constructive total loss-principle should be confined to the field of marine insurance.

Then we have cargo and registered mail—forms of property insurance—which are handled more or less as regular marine risks.

I should like to treat briefly the lines that you are most interested in, those in the liability field. First, let us consider public liability. One deviation of the aviation public liability coverage from its parent, the automobile public liability policy, is the exclusion of liability for passengers' injuries. A separate coverage must be written for passenger liability. This is partly because the underwriters usually insist that the passenger risk is an unknown quantity.

Public liability insurance is most often written for 5/10 limits but sometimes operators demand 50/100 coverage. We do not have the experience of the automobile insurance business where judgments range from sixteen to twenty thousand dollars over the amounts insured. But the sound broker usually advocates that the limits be at least 20/40 and often believes 40/80 coverage is wise. There are some policies written with million dollar limits covering public liability, property damage and passenger liability. These policies, as you imagine, are written at Lloyds and they are what we call "in all" policies. That is, all claims are added together, and the coverage ceases when one million dollars has been paid. Some underwriters in this country at the present time have "in all" policies. That is, they consider the premium fully earned on a 5/10 policy as soon as judgments of $10,000 have been met. Other underwriters follow the ordinary automobile insurance practice and pay all claims, even though their sum (in different accidents) exceeds the top limit.

Public liability insurance is written at more or less standard rates. You might be interested in the ordinary 5/10 rate. It is something better than one hundred dollars. As indicated previously the rates have taken a number of drops during the last six or eight months. Any premium quotations cannot be depended upon. This 5/10 premium is usually stepped up according to Table I of the Automobile Manual.

Property damage coverage is usually limited to one thousand dollars. The larger operators, however, are easily convinced that they need five or ten thousand dollars coverage which they get at a premium ranging upward from seventy-five dollars.

Passenger liability insurance is probably the most unchartered field of all of the aviation coverages. We do not know the legal liability of the operator. As far as we know, there have been no cases actually tried in court on this question. I believe that there is one case now against the Curtis Aeroplane Company, where a father is suing for the death of his son. Probably the aircraft operators will be looked upon as common carriers. Some fear that possibly they will be looked upon as "the keeper of a wild animal." Many feel that the longer we keep the cases out of court and the more air-minded the people become, the less the likelihood that the courts will look upon the aircraft operators in that light.

The rating of passenger liability coverage started at about three percent of the top liability. That is for 10/100 limits, the premium was three thousand dollars with an increasing credit sometimes allowed according to the number of passengers carried. Recently that rate has been considerably reduced in a good many cases and actually cut in half occasionally by the keen competition among the underwriters in this field.

Workmen's compensation! Someone smiled back in the rear of the room when I mentioned that the workmen's compensation premium is the one exception to judgment rating in aviation insurance. We are fully aware of the way the workmen's compensation rates were worked out, and greatly respect Mr. Perkins' efforts and his co-workers of the Travelers in that work. Much judgment was exercised in making up the rates, it is true. They were originally made up back in 1919 and there hasn't been a great deal of experience, that is enough indicative experience to make it worthwhile to change these rates. We probably should not consider that they are anything more than pretty good judgment rates.

I do not know whether I should say "pretty good judgment rates," because even the underwriters that made up the rates claim they have been losing money consistently on the workmen's compensation end of the business. That feeling seems to be pretty general throughout the workmen's compensation field anyway, and we cannot quarrel if it is the case in aviation insurance as well as in many other lines.

Aviation workmen's compensation insurance is not written by the underwriters unless the other more lucrative lines go in with it. There is not a case of "all or none,"—rather a case of some good business necessary to "sweeten" the bad. Most underwriters say, "Public liability and property damage at least before we will write workmen's compensation." This brief discussion must conclude our survey of the liability coverages.

Let us now consider the personal coverages, which you are interested in as individuals and not as actuaries. I think that we are all interested in knowing what is the status of our life insurance when we take a flight in a plane. If your life insurance is old enough, it certainly is not affected. That is if it was written before the underwriters began to get cautious about the aviation hazard. If it is of recent writing, possibly it has an aeronautics exclusion clause in it. You do not have to worry about that aeronautics exclusion clause so far as I know, if your contemplated flight is to be over a regular airway with licensed pilots and licensed planes operated by a regularly incorporated company, on a regular schedule, and if you are a fare-paying passenger. If you take a joy hop, possibly some of your life insurance will be invalidated unless the incontestable clause is in operation.

Pilot's life insurance has been a difficult nut for the brokers to crack. The John Hancock Insurance Company along with a number of other insurance companies conducted a rather extensive investigation. As a result of that investigation, they started writing pilots at a ten dollar extra premium. They did not write them very long at that extra premium. It was claimed that they were so flooded with applications, and also so flooded with quick claims resulting from crashes, that it was necessary stop underwriting abruptly. At the present time pilots can get insurance at an extra premium of twelve dollars and a half up to twenty-five dollars per thousand.

The life underwriters like to restrict these writings to air-mail pilots. Sometimes their attitude is rather inconsistent. In one particular case that has come to my attention the broker was asked to place insurance for practically all of the pilots of an airway operation as well as for the pilots at the various flying fields. One pilot was very anxious to get the maximum amount for which his company would pay the extra loading, ten thousand dollars worth of insurance. The application went in. It seems that a retail credit man went to the field and asked about this pilot's activities. He happened to meet a couple of persons who were very friendly toward this pilot and thought he was a very good pilot. So they told him what dangerous flying their friend was always used on. Whenever the owners had a plane to be severely tested, they always sent up So-and-So, and he could take that plane and put it through all the loops and test necessary. He even went up once and shook a wing off and came down with his parachute. Well, it happened that one of the pilots had gone up and knocked a wing off to prove to the field manager that the wing was no good and came down in his parachute; but it did not happen to be the pilot in question. The life insurance company said, "No, we can't take that pilot now." "Well," the broker replied, "he is going on the air-mail line in a very short time." "You get a statement from the operators that that pilot is going with the air-mail line, and we will insure him. Not until he goes on the air-mail, will we guarantee to insure him." The statement was gotten, and the pilot went on the air-mail line and got his insurance.

As a matter of fact, the pilot was just an ordinary pilot of the kind taking people up for joy-hops. Now he is engaged in all-night flying and probably is just as hazardous a risk as the risk outlined to the retail credit man that the underwriters refused.

Ticket accident insurance is another phase of personal aviation insurance. At one time one of the companies did write this coverage rather extensively. Negotiations for renewing the writing of that insurance are now being carried on as a result of the recently announced air-rail combination. It was written at the rate of a dollar per thousand for one day—rather high—five dollars for five thousand dollars worth of insurance. This seems especially high in view of the statements made at a convention down in Philadelphia last week, when the actuaries of a number of life insurance companies more or less agreed that if all the accidents were pooled together—in other words, if the experience over a number of years was taken—the personal accident companies could probably write all flights at ten cents to twenty cents per flight per thousand. That is a rather low rate, I know, and we have the possibility of adverse selection against the company. Still the brokers and the airway operators feel that a dollar per thousand is rather high.

This is of particular interest at the present time, because the airway operators seem to be attempting to classify themselves as being outside of the field of purely common carriers. Some of them are printing tickets and leaving a space for the passenger's signature, in which the passenger waives all rights of suit against the airway company. Of course, we pseudo-lawyers say right away that that will not "hold water" in the United States for one minute. We can sign away our own rights to sue, but we can not sign away the rights of our heirs to sue. Some of the best legal minds seem to feel, however, that there is a possibility of such waivers being held valid if the operator has given the passenger opportunity to purchase reasonable amounts of personal accident insurance.

This makes ticket accident insurance most important. If the operators can give the passenger the possibility of purchasing ticket accident insurance and also indicate that reasonable limits of passenger liability insurance have been arranged, there may be some grounds for the feeling that there can be a limitation of liability. For that reason, the operators are very anxious that adequate ticket accident insurance be made available immediately.

Those three fields of coverage—property, liability and personal—more or less conclude the survey.

In closing, I should like to indicate some of the general progress in hazard reduction. There are a number of optimistic signs pointing towards hazard reduction. First, the Guggenheim Fund is now carrying on experiments in the dissipation of fog. They have hired Lieutenant Doolittle and have just purchased two airplanes. Doolittle is carrying on extensive investigation work, not only in dissipation of fog, but in the using of neon lights for the penetration of fog.

Parachutes are possibly one other reason for optimism for the future in aviation, from the standpoint of passenger-carrying. The individual parachute is very impractical. If you give twelve passengers parachutes to strap on their backs and tell them to take their place in the plane, probably six of them will decide that they do not want to take the flight. When you get into a large passenger plane, everything is done to make you feel secure. You do not even see a parachute anywhere.

The army is now conducting experiments out in McCook Field under the direction of Major Hoffman with parachutes which will take the weight of the entire plane, even a twelve-passenger plane, and rest it gently to earth in case of engine failure or in case something happens to the pilot or both pilots. You might be interested to know that practically all of the large transport planes carry two pilots.

Some enthusiasts even contend that these parachutes probably will be effective on large planes if the plane goes into a side-slip at one hundred or two hundred feet from the earth. That is the greatest hazard, of course—when the plane is taking off and banks over so perilously near to a right angle with the earth.

There is at least one other reason for optimism. The National Advisory Committee for Aeronautics has conducted during the last year quite an investigation of ice forming on the wings of planes. We believe that ice explains the loss of many of the trans-Atlantic flyers. As you know, moisture condenses and the ice forms on the wings, even collects on the propeller, and gradually brings down the plane. The pilot does not realize it immediately; and before he does realize it, the plane becomes unmanageable and a crash results. They hope very soon to have some way of coping with that hazard.

Probably the most important thing that is being developed at the present time is the use of the radio in airway operation. The Pan-American Airways, in flying from Miami to Havana,—the regular flights on the Miami to Porto Rico run will start in January,—will have every plane equipped with radio apparatus. There will be a station in Miami and a station over in Cuba. The pilot of a plane will have a chart in front of him. His course will be laid out on the chart. The chart will be divided into squares, and the squares will be red and white. He will get signals all the way across that will tell him which square he is in. Right in front of him he will always see just how far off his course he is and thus he will always be able to get back on his course.

Radio marker beacons are being placed at short intervals on the regular airways, and radio apparatus is being installed on many of the air-mail planes. The pilot will be able, every ten or twenty miles, to know whether he is on his course by hearing this radio signal from the marker beacon.

As actuaries, you will probably be dissatisfied for some time to come with the aviation data available for rate making purposes. The Department of Commerce and the National Advisory Committee for Aeronautics are doing good work in accident classification and interpretation. This data will serve to guide the individual's judgment. Let us remember the history of automobile rating and not be too exacting in our attitude toward aeronautics.

Last week a life insurance official at an aviation hazard conference in Philadelphia aptly said, "We must look at aviation with prophetic vision." For the good of the institution of insurance and for the future of aeronautical transportation, coverages must be liberalized carefully and soundly but "with prophetic vision." By this, I mean that the nature and needs of the enterprise must often be good cause for deviations from standard provisions. This should only be done, however, when all parties concerned are fully satisfied with the moral hazard involved. Poor housekeeping, incomplete inspection routine, unsound financing, superficial experience in the case of those in charge of operations, undue pressure on pilots to take great chances—these are some of the things that must be watched for and guarded against most zealously by the underwriter who would survive.

Competition for a powerful broker's business will occasionally require that they be disregarded. The normal limitation on inspection costs, in the case of small risks, will often tempt, or even require the underwriter to depend on spread instead of selection.

Prediction must always be taken with a grain of salt, but it seems that it will be a long time before any broker's good business will sufficiently "sweeten" the whole to warrant "accommodating" him extensively. It also appears that the time is a long way off for general dependence on spread instead of extra careful selection.

In keeping before themselves these two warnings, the underwriters will find themselves in full accord with the two soundest influences in commercial aeronautics today—the Guggenheim Fund for the Promotion of Aeronautics and the Aeronautical Branch of the Department of Commerce. Safety is their watchword; it must be the underwriter's also, but let us not forget "with prophetic vision."

ABSTRACT OF THE DISCUSSION OF PAPERS READ AT THE PREVIOUS MEETING

A SYSTEM OF PREPARING RESERVES ON WORKMEN'S COMPENSATION CLAIMS—A. N. MATTHEWS

VOL. XIV., PAGE 244

WRITTEN DISCUSSION

MR. JOSEPH LINDER:

The loss reserves of a casualty company may roughly be divided into the following two groups:

Group I. *Reserves for Financial Purposes.* These consist of aggregate reserves for the purpose of interpreting by line of insurance the position and progress of the company as a whole or certain geographical divisions thereof.

Group II. *Reserves for Experience Purposes.* These consist of individual case reserves for the purpose of preparing experience summaries for individual risks or groups of risks.

The financial reserves may be arrived at by taking the aggregate of the experience reserves or by an independent statistical method of computation. Under the method outlined in the paper under discussion, the company obtains its financial reserves as the aggregate of its experience reserves. This necessitates the recording of loss payments and periodic estimates of incurred cost so as to make readily available the outstanding reserve for each claim. At the end of accounting periods a card is cut for each open claim and the required distributions are made. As Mr. Matthews points out, this method makes for a duplicate recording of all loss payments as between the home office claim department and the reserve division. (In most companies that follow the practice of obtaining financial reserves as the aggregate of experience reserves, there would usually be a third recording in the branch office claim department.)

When consideration is given to the distribution of compensation claims by duration of claim, it will be noted that more than 90% of all reported notices become closed cases within a relatively short period. Under a method such as the one under discussion, no distinction is made according to duration of claim; at the end of an accounting interval a card is cut for *each* open claim, recording the incurred cost and accumulated payments, the net being the amount of outstanding reserve.

If during the early period of claim duration financial reserves are obtained by a statistical method of computation rather than as the aggregate of experience reserves, the outstanding reserve for *each* claim would not be of importance. It would, therefore, not be necessary to record payments against the individual claims. During the early period of claim duration, when the number of outstanding cases is large, the incurred cost on individual claims is usually all that is required for experience purposes. During the later period of claim duration, when the number of outstanding cases is small and the segregation between paid and outstanding is desired, such segregation may be secured from the home office claim department.

In brief, if a statistical method is utilized for obtaining financial reserves during the early period of claim duration (individual estimates being used for the later period of claim duration), it is possible to eliminate the additional posting of loss payments and to accomplish a considerable reduction in the number of cards cut for open cases (since no cards would be cut during the early period of claim duration.)

AUTHOR'S REVIEW OF DISCUSSION

MR. A. N. MATTHEWS:

Mr. Linder states in his discussion that there are two kinds of compensation loss reserves, namely financial reserves and experience reserves, and also that the financial reserves need not necessarily be the total of the experience reserves. It is undoubtedly true that this is usually the case. However, if the experience reserves are less than the correct outstanding losses the incurred losses which are used for rate-making purposes will be underestimated and the resulting rates will be inadequate. On the other hand if the experience reserves are correct, and the financial reserves are less than the sum of the experience reserves it is apparent that the reserves as actually carried on the liabilities page of the annual statement will be inadequate. In other words while it is probably true that the financial reserves are not usually the aggregate of the experience reserves, this is not the ideal condition.

It is possible that the method outlined in my paper will produce outstanding losses which are not absolutely correct because of incorrect estimates on the part of adjusters and also on account of the fact that there is a certain period between the time the accidents actually occur and when they are brought into the reserve system. These items of course should be taken into consideration in the calculation of both the financial reserves and the experience reserves of the company.

As Mr. Linder points out a large proportion of the total number of compensation cases are closed within a short time after date of accident and if these cases could be eliminated from our reserve system a large part of the work involved would be saved. Unfortunately under the procedure used it would be impossible to eliminate these short term cases and still be absolutely certain of receiving all of the long duration claims.

One of the principal advantages of this system is that every step must balance, which eliminates errors to a very large extent. This balance could not be maintained unless every case were used. Furthermore, if a system were devised which took into consideration only the long term cases it would be similar to our old system of obtaining claim files whenever it was necessary to calculate outstanding losses. It is true that the mechanics of the system would be somewhat different, but still there would be the objection that there would be no control on the work.

I am taking this opportunity to add that since my paper was presented this system has been extended to include liability in order to furnish the additional information required for Part I of Schedule "P" in the 1928 annual statement. While this system has been in effect for only about six months, the results appear to be entirely satisfactory.

REVIEWS OF PUBLICATIONS

RALPH H. BLANCHARD, BOOK REVIEW EDITOR

Casualty Insurance. Clyde J. Crobaugh and Amos E. Redding. Prentice-Hall, Inc., New York, 1928. Pp. xv, 773.

In their preface to this volume, the authors state that there is little in printed form to which either the seller, the buyer or the student can turn for a general and practical knowledge of all of the casualty lines. They further state that the lack of a suitable text has been one of the chief obstacles to the extension of the study of casualty insurance. The authors have endeavored to write a book which will be useful (1) to casualty agents and brokers, who desire to develop a comprehensive knowledge of the business as a whole, (2) to policyholders who wish to become better informed in regard to the protection they carry and (3) to university students as a textbook.

In the Introduction are discussed briefly such items as the general nature of risk and insurance, the scope of casualty insurance, state insurance, moral hazard, types of carrier, organization and investments. Following the Introduction, each of the major lines of the business is treated in a fairly uniform manner. The economic background, the historical development, the general policy terms, an analysis of the policy, the rate charged, underwriting practice, a copy of a typical policy and application, proof-of-loss blank (under some lines), review questions and references for further reading form part of virtually every chapter except the first and last.

From the foregoing paragraph it is perhaps evident that the discussion of each line of business is substantially complete in itself. This manner of treating the various subjects has of course necessitated some repetition, and this will undoubtedly be considered unorthodox by a few writers. However, if we adopt a scientific rather than a judicial attitude we will find that the authors have accomplished their purpose, and the repetition becomes more of a virtue than defect. For example, if we wish to obtain a general view of the field of Accident Insurance it is not necessary to read half a book of general principles before we can comprehend the chapter on this subject. We simply read the chapter on Accident Insurance, and we are enabled to secure a fairly comprehensive idea of its scope. Heretofore, few casualty texts have included specimen policy forms, pages from manuals and rate sheets in the profusion in which we find them in this volume.

Under automobile insurance, the authors have pointed out that a certain minimum exposure is necessary to secure a dependable pure premium and, while a rigorous mathematical proof is wisely not included, the reader is left with the idea that dependable rates cannot be blindly predicated upon any exposure which may be available. Again the authors may be considered unorthodox for having included a brief discussion of automobile fire, theft and marine insurance in a volume relating to casualty coverages, but in the opinion of the reviewer this inclusion should require no defense.

If premium volume is used as the standard of measure, the amount of space devoted to each of the coverages bears some general relation to their relative importance. It would be impracticable to discuss each coverage in detail. Incidentally, however, under boiler insurance there is no discussion of cracks and fractures. This would seem to be a serious omission. In discussing controversial issues, such as the rival claims of participating and non-participating carriers and the Massachusetts Compulsory Automobile Liability Act, the authors have impartially presented the arguments for each side.

The volume under discussion is not a book which one should try to read at one or two sittings and I cannot visualize any college student, policyholder or producer (the three classes of person for which the book was written) attempting to do so. The book should be used more in the manner in which one uses an encyclopaedia, and could be read to advantage by many home office employees. All progressive casualty companies should welcome the opportunity of employing persons who had studied this book prior to their entry into the insurance business.

W. PHILLIPS COMSTOCK.

Insurance. S. B. Ackerman, Ronald Press Co., New York, 1928. Pp. ix, 609

According to his preface, the author has written this book for the purpose of enlightening those who, as it were, are not professionally interested in insurance. In other words, the intent is to give the layman or prospective purchaser of insurance an insight into the various coverages which can be obtained; as opposed to the usual text on insurance, which, because of its professional terminology and more deeply involved approach, has little meaning to the uninitiated. The author also is of the belief that this work is quite suited for use in college and university classes; for these same reasons.

The discussion is composed of four general divisions; (1) an outline of the needs for, and the underlying principles of insurance; (2) an analysis of the various coverages in the life, casualty and fire lines; (3) a résumé of some of the organizations and practices in the insurance world; (4) a series of problems based on situations which might arise in connection with the subject matter of each chapter.

The first two chapters are devoted to the general discussion of insurance, and apparently are designed to give the student an introduction to the economic and social need for some plan, whereby the losses and burdens of the individual are lightened. It is explained that this is accomplished by the present system of insurance which recognizes the truth that the individual's losses and difficulties affect the community in general. The next 21 chapters are devoted wholly to an analysis of the coverages afforded under all lines, beginning with life insurance, and ending with fidelity and surety bonds. Each line is taken up individually, first by a paragraph or two explaining its purpose, followed by an enumeration of the general conditions and agreements in the policies for that particular line. Then follows a further enumeration setting forth the variations in the general coverages which may be obtained. There are numerous policy forms shown, as well as binders, riders and other forms and agreements in general use. General practices and conditions in relation to the various types of insurance carriers, principles of organization and management of companies, including reinsurance and investments, and legal interpretation of the insurance contract are sketchily outlined in the last six chapters of the volume.

The volume is valuable chiefly as a reference book or outline for a classroom or lecture course. It is replete with enumerations and tabulations of characteristics peculiar to various lines of insurance, but lacks the explanatory aids and textual elaborations necessary to the student or lay reader not having available other sources of information. The problems presented, most of which involve questions of coverage, are well selected for classroom discussions, but are of such a nature that only a rather small percentage could be intelligently solved by an individual who had nothing but the book as a basis of his insurance education.

The book does not take up any of the more involved problems, such as would occur from an actuarial standpoint and, in fact, the author specifically states that his work is not especially useful to "the comparatively few who are immediately concerned with the task of determining premium rates."

T. F. TARBELL.

Sickness and Invalidity Insurance in Canada. Department of Labour, Canada. November, 1927. Pp. 10.

There is no legislation in Canada establishing compulsory sickness insurance, except in the case of specific industrial diseases covered by the workmen's compensation laws. There has been considerable development, however, of voluntary insurance against sickness and accident disability, and the current situation in this respect is reviewed briefly in this pamphlet issued by the Department of Labour.

A substantial amount of insurance against the more severe forms of disability is provided by waiver of premium and monthly income benefits attached to one and one-half billions of the life insurance in force in Canada at the beginning of 1927. It is pointed out that these benefits are non-cancellable, and that a liberal interpretation has been established in regard to the permanent and total disability clause governing their payment. Sickness benefits are also paid by life insurance companies in connection with certain of the group insurance plans that have been established by many industrial and business firms. Personal accident and health policies of the cancellable variety are written by a number of commercial insurance companies, the premiums on this coverage, exclusive of employers' liability and workmen's compensation, amounting to more than six millions of dollars in 1926.

Among the self-insured agencies providing sickness and accident benefits to special groups are mentioned fraternal benefit societies, employees' benefit plans in industry and business, and benefit systems maintained by trade unions. The benefit plans established for employees of various industrial and commercial concerns are discussed at some length, and the results of a questionnaire addressed by the Department of Labour to 150 employers having plans of this character are broadly summarized, evidently for the purpose of providing information as to their general features to employers contemplating the establishment of similar systems.

The statistical data included in the pamphlet are insufficient to permit any general conclusions as to the extent to which the need for sickness insurance is being met by the several agencies providing this protection. The Department of Labour expresses no opinion on this point, but merely presents without comment the information that has been collected.

OTTO C. RICHTER.

Systems of Sickness and Invalidity Insurance Existing in Various Countries. Department of Labour, Canada. April, 1928. Pp. 24.

This pamphlet presents a brief survey of the systems of sickness insurance, separated as between voluntary and compulsory systems, which are in force in various countries of the world.

The summary of voluntary schemes now in force in 18 countries indicates chiefly the nature and legal status of agencies providing this protection. These agencies are, in most cases, mutual benefit societies or friendly societies, and are supported principally by contributions from the members. In a number of cases, legal recognition of these societies is granted by the state, and, under certain conditions, state subsidies are paid.

The compulsory insurance schemes in operation in 22 countries are summarized in somewhat greater detail. In each case, information is given in regard to the introduction and legal status of the plan, the persons insured, the amount and source of contributions, the amount and conditions of benefits, and other distinguishing features of the plan.

There is no discussion of the experience under either the voluntary or compulsory systems. The listing of these plans by countries in alphabetical order provides a convenient reference to general information regarding current systems of social insurance, but the data included are generally too limited to provide a suitable basis for detailed studies or comparisons.

OTTO C. RICHTER.

Unemployment Insurance. Department of Labour, Canada. March, 1928. Pp. 66.

As this pamphlet contains no preface indicating the purpose for its preparation, the reviewer made inquiries of the Honorable Peter Heenan, Minister of Labour, concerning the reason for the undertaking. The Canadian Department of Labour replied in part as follows:

> Interest in the subject of "Unemployment Insurance" and the requests of labour organizations and others that consideration be given to the question of the adoption of some scheme of unemployment insurance in Canada led to the compilation of information regarding the plans of insurance against unemployment operating in other countries. This was originally compiled some years ago and has been brought up to date from time to time by the Research Branch of this Department.

The text of the pamphlet begins with a few general statements pertaining to unemployment insurance with special reference to compulsory insurance. This is followed by brief summaries of the various schemes in force and proposals introduced in legislative bodies presented in alphabetical order by countries.

A more detailed description of compulsory systems is next presented.

The compulsory schemes in force in Australia (Queensland), Austria, Bulgaria, Germany, Great Britain, Italy, Luxemburg, Poland and Russia and those which have been proposed in Massachusetts, New York, Pennsylvania, and Wisconsin are summarized. The salient provisions of the several systems are condensed under uniform headings, variations of this procedure being introduced wherever required. The principal headings used are Introduction, Persons Insured, Contributions, Benefits, Conditions of Benefit, Disqualifications for Benefit, and Disputed Claims. This method of presentation enables the reader to grasp quickly the important points of each scheme and make comparisons readily.

The various Acts which form the basis of the compulsory system of Great Britain are given considerable space, which is appropriate in view of the importance of the British scheme. While it is realized that this summary is for the most part devoted to schemes now in force, it may be regarded as unfortunate that the compilers dismiss the early history of unemployment insurance in England with only a few sentences and begin their detailed compilation with the Act of 1920. Mr. Leo Wolman has called attention to the interesting and remarkable experimental stages through which the English system of unemployment insurance has passed and the many devices which have been tried by the various British governments which have legislated for the scheme. In this connection Mr. Wolman makes the following statements:

> Enumeration of these features of the British system, including those that were discarded as well as those that were retained, will bring to light practically all of the elements that are essential to any well conceived and workable proposal for unemployment insurance. These elements will not, of course, always appear in the form in which they were used in the English legislation and administration, but essentially they are the elements which will be taken into account in any scheme for unemployment insurance.[1]

The last 17 pages of the pamphlet under review are devoted to a list of references on unemployment insurance. The books and articles selected for listing are grouped under two headings, General and Regional, the latter group being further subdivided by countries to the systems of which the references relate. This is one of the most valuable parts of the compilation and should be of material assistance to anyone making a study of unemployment insurance.

M. E. Uhl.

L'Historique des Assurances Sociales en France. Robert Perdon. Librairie Soufflard, 3 rue Lebouis, Paris. (15e), 1928. Pp. 34.

This paper opens with a brief historical review of insurance in general and of mutual aid societies in France. It deals first with the situation preceding the French Revolution; then with the movement for welfare legislation in France from 1800 to 1870; with social insurance proposals during the Third Republic; with the law of April 5, 1910; with the laws of 1909 and 1911, which provided for railway operatives, for office employees and municipal employees; and with the Occupational Accidents Law of 1898.

Much information not available elsewhere is given on the historical development of French law affecting mutual insurance

1. Wolman, Leo, "Unemployment Insurance," in "Business Cycles and Unemployment," New York, 1923, p. 306.

societies. The law of July 15, 1850 was the first that provided definite regulation for mutual insurance societies in France. Consideration of the question during the ensuing 45 years led to the enactment of the law of April 1, 1898, which laid the foundation for the organization of the more than 22,000 mutual societies, with a membership of about 3,000,000, in France at the present time. Some interesting information is given on the study made of the German social insurance system in Alsace Lorraine by the committee headed by M. Millerand. The discussions in the French Parliament of the bill prepared March 22, 1921, are described.

The author denies that Germany is the originator of social insurance.

E. W. Kopf.

Safety and Production. A Report by the American Engineering Council. Harper & Bros., New York, 1928. Pp. 414.

This work comprises the findings of the Committee on Safety and Production of the American Engineering Council. It is a study of the relationship between industrial safety and production. The study was made at the request, and with the financial assistance of, the National Bureau of Casualty and Surety Underwriters.

The first section of the report is devoted to a statement of the problem by Professor Albert W. Whitney. He shows that although there has been a distinct downward trend in industrial accidents since 1900, there has, since 1920, been a marked increase in the number and severity of accidents. This has been sufficiently serious to result in the decision on the part of the casualty insurance companies that the situation warranted a careful study of the problem on a national scale.

Statistics indicate, as might be supposed, that the increase in number and severity of accidents is due, at least partly, to the greatly increased productivity of American industry in recent years. Here are the facts: less accidents measured in terms of things produced; more things produced, however, hence more accidents.

The problem is stated to be: how can accidents be controlled under modern industrial conditions? The question "Can they be controlled?" is first answered in the affirmative by showing that many individual cases exist in which such control is achieved.

The Committee, after stating the problem, gives what it believes to be the solution of the problem and then sets out to prove that its belief is correct.

This is its thesis: that the safe factory is, in general, the efficient factory, and the efficient factory, in turn, is the safe factory; that safety in the factory and efficiency of production are both aspects of good executive control, and that a right organization in industry will, with proper managerial effort, bring about both efficient and safe production, and further, that neither can be satisfactorily achieved by itself alone.

This thesis the Committee seems to prove by the introduction of a great amount of statistics gathered from 359 industrial plants and covering 254,529 employees. The conclusion of the Committee is that when the same executive direction and control is given to decreasing industrial accidents as is given to increasing productivity, much improvement will be achieved.

In this book the Committee has reported in detail a large part of the statistics gathered. There is included industrial accident experience from about 1916 to 1925. The results are interesting, and the records of some industries are very encouraging as examples of the degree of improvement which it is possible to attain.

This book was published primarily for the purpose of interesting executives in the subject of control of industrial accidents. It deserves their critical study and it is to be hoped that it achieves its purpose to a marked degree.

WILLIAM M. CORCORAN.

Profits in Insurance Stocks. Walter H. Woodward. The Macmillan Company, New York, 1928. Pp. viii, 122.

This book is well entitled "Profits in Insurance Stocks" since so general have been the profits on such stocks for those who have held the securities of good companies that a book dealing with the investment feature of insurance stocks must very largely deal with profits.

While the book is short, consisting of only 122 small pages, it gives much useful information. It is written in popular style, and is intended to give a survey rather than in any respect a close analysis.

After a few words about investment in general it gives a brief description of the different kinds of insurance companies, in which the author assumes a degree of scientific accuracy in predicting the amount of future claims which is far beyond that realized, or likely to be realized. It also describes briefly the finances of starting an insurance company, and calls attention to the state supervision exercised. Following this it comes to the beginning of what may be regarded as the financial part of the book, and makes a comparison of insurance stocks with investment trusts. With regard to insurance companies, in so far as their profits depend upon the investment feature, there is no question that this is correct. It, however, should not be carried too far, since the primary business of all insurance companies is underwriting, which is absent from the investment trust, and the profits or losses in the classes of business insured must necessarily mean that much profit or loss to the company. That it may be, and sometimes is, a loss must not be overlooked.

The following statements are made:

> Our great insurance organizations have on their executive staffs men trained by many years of experience in the selection of securities—students of markets, of values. These men know well the prime requisites of sound investment—safety of invested principal and great diversification of risk.
>
> Few of the problems facing the individual buyer of stocks and bonds, no matter how great his wealth, confront the finance committee of an insurance company. The sources of information and statistics open to the great organization are not available to the individual.

This is certainly optimistic as regards the investment organizations of the insurance companies. They are usually unquestionably good in their investing; so are a large proportion of the wealthy individuals, particularly if their money has been made in that line.

It would seem to be the theory that because insurance stocks in the past have been such a good investment, and have continued to go up, this always will continue. I cannot agree with this reasoning. The fact that a certain class of stock has gone up in the past is no argument that it will do so in the future. I believe for other reasons that the good insurance stocks will continue to advance, but am not in any respect willing to found this belief on the fact of previous advances in the value. It must not be lost sight of that, while the profits in these stocks seem great, they are small compared with what the fortunate investor could have obtained in well-known stocks on the New York Stock Exchange. A few thousand dollars invested a few years ago in General Motors, or Montgomery Ward, or any one of a long list of stocks would make the owner well-to-do at the present time, and would have shown profits beyond those of the insurance stocks. Indeed, part of the reason that the insurance stocks have advanced as they have is the general advance in nearly all good securities.

One of the useful features is a formula for determining the value of insurance stock. It will be seen that this formula includes a large allowance for good-will under such guise as a percentage of insurance in force or of reinsurance reserve, although it is not specifically mentioned as good-will. Whether the good-will is worth the allowance that is made for it must depend upon the company. Notwithstanding the fact it is hardly referred to in this book it must not be forgotten that insurance companies do not all make good, and that there is a mass of wreckage here as in other lines of business. In life insurance in particular, the difficulties of starting a new company and putting it on a profitable basis are very great, and it will be noticed that among the insurance stocks mentioned there are those of only three life insurance companies which are all well-known and very successful Hartford companies. The value of the good-will of stocks in companies like these is only a question of amount. If we come, however, to the struggling young company which has not yet made its place the situation may be quite different.

In the case of companies in other lines of business, particularly in fire insurance, there is a different situation, and most good companies that have obtained a foothold have been profitable to their stockholders.

A most useful feature of the book is the financial history which it gives of a considerable number of the important companies. In this it gives a table for each company showing the growth of the company and various factors important in its financial history. Such tables are given for 22 companies.

As a summary, I would say that this book is valuable for the information it furnishes, but that it is very optimistic and does not sufficiently bring out the fact that advances in the price of insurance stocks must first cover the deficiency in dividend return on purchase price which most of them show as compared with other investments before there could be any calculation of profits.

WENDELL M. STRONG.

Banking Standards Under the Federal Reserve System. Horace Secrist. A. W. Shaw Company, Chicago and New York, 1928. Pp. xxxvii, 420.

In his preface the author of "Banking Standards" calls his work a research study which is "intended to be consulted and used rather than to be casually read." Indeed, the 450-odd pages between the covers of this book contain more than 200 tables and over 50 charts, each fully explained and interpreted, making the whole an enormous catalogue and reference book of statistics. These statistics set forth the trends in the banking experiences of the members of the Federal Reserve System between the years 1919 to 1925, inclusive. One quickly realizes that he who reads dare not run, for the style is concise and scientific. No unnecessary words are used, and the close attention of the reader is constantly demanded.

The book is divided into five parts. Part I sets forth the problem involved, its significance, the kind of data used, the methods of study, and some general conclusions. Having assumed that it was possible to discover norms, trends and correlations in the data on banking operations, the author attacks his problem by analyzing in detail the Reports of the Federal Reserve Board, Reports of the Comptroller of the Currency, and the files of the Federal Reserve Banks of Boston and New York. The data of these reports and files, however, are first converted into ratios which are expressed in terms of suitable bases.

In Part II the norms and trends of ratios representing the various kinds of banking operations of all member banks are set forth by districts. For example, in one chapter the composition of earning assets is the object of analysis, and the ratios of loans and discounts, as well as investments, to earning assets are shown. Three bases of comparison are used: first, ratios showing variations of percentages for the several districts with respect to their own seven-year average levels; then, the direction and percentage amounts of change in the ratios from year to year; and finally, ratios showing the positions of each district with reference to all the districts of the country combined.

Similarly norms and trends in ratios are shown for other data of banking operations. Thus another chapter deals with the relation of total deposits to earning assets, and further divides the deposits into demand and time deposits showing the relation of each of these to both the earning assets and the total deposits. Gross earnings are related to earning assets in a third chapter. Still another chapter takes up the relation of total expenses to earning assets and to gross earnings. Total expenses are subdivided into salaries, interest on deposits, interest and discounts on borrowed money, taxes, and "all other" expenses, and each of these are separately related to earning assets. Finally net earnings are related to earning assets and gross earnings.

The same bases of comparison are employed in Part III, but the object here is not to discover norms and trends in any of the individual series mentioned, but to correlate "two or more series at the same time." In Part IV the analysis is like that of Parts II and III, except that it is devoted specifically to the member banks of the Federal Reserve System in Boston and New York.

A brief summary and interpretation in Part V brings the book to a close. Two types of general conclusions emerge. First of all, there are marked tendencies of similar behavior in the individual series of data relating to banking operations by districts and within districts. District ratios at any given time are similarly placed with regard to their own seven-year averages. They change in the same direction and by similar percentage amounts, not only from year to year, but over a series of years. There is also a tendency for the ratios which are high or low in a given year to decrease or increase respectively in the year following, showing plainly a regression to type. And there seems to be a tendency for ratios in a given district (or of a group of banks) to remain consistently above or below the country as well as the district averages. In the second place, the several kinds of transactions or services rendered by these banks "are interrelated, the pattern of such interrelation repeating itself with substantial uniformity year after year, not only in one part but throughout the whole Federal Reserve System." (p. 347) All these tendencies, according to the author, are due to the essential unity and competitive character of the banking system on the one hand, and the intimate relation of that system to the general business and economic conditions of the country on the other.

In view of the fact that about 33 per cent of all banks in the United States are members of the Federal Reserve System, and particularly since this 33 per cent has about 60 per cent of the earning assets of all banks in the country, such a study as this assumes considerable importance.

Throughout the author stays close to his data, and his theories flow directly out of a careful analysis of his own statistics. And while he concludes that there are "master facts" of banking experience that can be quantitatively expressed, he regards these as norms, trends, and correlations rather than absolute laws viewed in a mechanistic sense. Indeed, the "facts" are considered "as finite and relating to a specific period of time."

One of the many good features of this book is the arrangement of the table of contents in outline form, and the division of the index into two parts, one of which refers to the tables and charts, the other to the topics in the discussion. Since the book will probably be used as a reference this kind of arrangement deserves to be especially mentioned.

"Banking Standards Under the Federal Reserve System" should appeal strongly to practical bank executives who will find valuable guides here on questions of banking policy. The complicated series of figures, particularly in Part III, ought to be a delight to the statistician. And the careful ventures in theory should bring a glow of pleasure to the economist who has more than a passing interest in the theory of credit and banking.

William B. Bailey.

Principles of Valuation. John Alden Grimes and William Horace Craigue. Prentice-Hall, Inc., New York, 1928. Pp. xvii, 274.

The authors cover only a particular aspect of the general subject of valuation. The principles laid down, and the formulae given, are useful chiefly in the approximate valuation of properties which may be expected to yield future income and which possess worth solely because of potential earning power. Furthermore, the valuer is supposed to be competent to make accurate estimates both of the amount of the future income of a property for a term of years and the distribution of that income in time intervals. The methods do not apply, of course, to the valuation of public utility properties where future income is subject to change by reason of statutory or administrative law in respect to "fair" rates of return, etc.* These authors have given the valuer, thus circumscribed, certain tools to work with; but they are careful to point out that the accuracy of any valuations so made depend also upon the capability, the experience and the judgment of the valuer. They have provided different methods of valuation applicable to (1) properties where the earning of interest is the predominant element and (2) where the risk of loss is the major consideration. Six of their methods apply to the less speculative types of income from property. Their factor of safety method, which provides a discount for hazard, applies chiefly to the valuing of income subject to serious risk of non-receipt. The authors describe the compound interest deferment method of valuation where the investor acts as banker, furnishing any additional capital required, and having capital returned to him as rapidly as the receipt of income will permit. Under this method, each year's income is regarded as a separate financial transaction, is valued separately and the algebraic sum of the yearly sums comprise the total value of the income for the life of the investment. Any year's income consists in part of a return of capital, and, in part, of a payment of interest. This method assumes that interest will be paid to the investor on each part of the capital returned to him during the year.

The compound interest actuarial method of valuation is then discussed. Here the investor acts as banker, furnishing any additional capital required and has capital returned to him as rapidly as the receipt of income permits, *but* income for the term of the investment is valued as a whole. A constant rate of interest is assumed and the interest on the total capital outstanding, at the beginning of the year, is the first charge against income for any year. Of course, interest not paid in any one year is

*For late developments in the philosophy of public utility valuation, see current reports of St. Louis and O'Fallon Railway Co. and Manufacturers' Railway Co. cases on appeal before the United States Supreme Court.

added to the amount of outstanding capital at the beginning of the year.

The authors then describe four sinking fund methods. The sinking fund method is, in essence, one where no part of the initial capital may be returned to the investor during the period of investment, where the sinking fund and not the investor acts as banker, the investor receiving during the entire period of investment interest at a stipulated rate or rates upon his initial investment. Interest is a first charge against the income of each year. The first sinking fund method is based on the premise that the rate earned by the sinking fund is the same as the rate of interest paid the investor. This would, of course, be expected only in a "safe" investment. The second sinking fund method assumes two rates of interest, a "speculative" rate, say 10 per cent. on constant capital for the investor, and a "safe" rate for the sinking fund, say 4 per cent. This is the Hoskold type of formula.

The Morkill formula is then discussed and here a "speculative" rate of 10 per cent. is assumed for the investor on capital outstanding in the speculative enterprise at the beginning of each year, plus a "safe" rate (4 per cent.) to the investor on positive amounts withdrawn from the speculative enterprise by accumulation in the sinking fund, and a "safe" rate (4 per cent.) for the sinking fund. This method of valuation tends to divide the total investment into two distinct investments, a "safe" investment, bearing a "safe" rate and a "speculative" investment bearing a "speculative" rate; the "safe" and "speculative" elements being variable parts from year to year of the total investment.

The authors then discuss a three-rate method devised by them. Here, the investor receives a "speculative" rate (10 per cent.) on capital outstanding in the speculative enterprise at the beginning of each year, and a semi-speculative rate (8 per cent.) on the capital in the sinking fund at the beginning of the year. The sinking fund itself is invested to earn a "safe" rate (4 per cent.). This method tends to divide the total investment into two separate parts, a speculative investment at a speculative rate and a semi-speculative investment at a semi-speculative rate. The total investment is constant; the speculative and semi-speculative portions vary from year to year. The interesting way in which this works out is shown on Page 51 of the book.

The authors then give types of valuation formulae for terminal and perpetual incomes, the special formulae being derived neatly from the general formulae outlined in the earlier parts of the book. The fourth chapter deals with valuation problems in connection with incomes subject to income tax. The chapter on interest rates contains historical discussion of fluctuations in yields on different types of investments over the past century or so. This text is an introduction to the valuable historical tables shown in Appendix A. This appendix shows the long-time swing of the following types of yield rates: United States Government bonds; investments of New York mutual savings banks; invested assets of life insurance companies; first mortgage loans of life insurance companies; market rate of interest on 60- to 90-day commercial paper; average minimum rates of discount of European banks from 1845 to 1925, and much other historical material not conveniently available in the ordinary source books of financial statistics. The tabular appendix alone would be worth the price of the book.

E. W. KOPF.

CURRENT NOTES

ARTHUR N. MATTHEWS, CURRENT NOTES EDITOR

COMPULSORY AUTOMOBILE INSURANCE

With the convening of the various state legislatures in the early months of 1929 it is anticipated that a large number of bills providing for compulsory automobile insurance will be introduced. This is probably the most important question which will be considered by the bodies during the coming sessions.

In other countries there appears to be a definite trend in the direction of compulsory automobile insurance. New Zealand has just passed a compulsory automobile liability insurance act which will become effective on June 1, 1929. Under the terms of this act approved companies are to have their names published and the motorist, when applying for a renewal of his license or when obtaining a new license, will designate the company in which he desires to place his insurance. The premium will be collected by the Registrar of Vehicles and the insurance will go into effect at once. No attention will be paid to the motorist's previous record or to the age and condition of the car. Also, unauthorized use of the car does not affect the insurance and it is specifically provided that a joy-rider shall be considered an authorized agent of the owner for the purposes of insurance settlement. The New Zealand act appears to insist upon coverage for the injured party regardless of any other's rights.

A compulsory automobile liability law is now before the legislature of Victoria. Many European districts are considering the advisability of this class of legislation and the whole problem seems to extend wherever there are automobiles. (*The Spectator*, December 6, 1928.)

DRIVERS' LICENSE LAW PROVES SUCCESSFUL

The drivers' license law for examination of new drivers, properly administered by a centralized department, may be expected to reduce motor vehicle fatalities by about 20 per cent. This is the conclusion drawn from an elaborate study, just completed by the National Safety Council, of automobile fatality rates in the states which have adopted laws requiring the licensing of drivers. There are seven states included in the survey: Connecticut, Massachusetts, California, Pennsylvania, New

York, New Jersey and Maryland. Reductions in accidents after the passage of the drivers' license law range from 4 to 31 per cent. and the average is 20 per cent. In Maine and Vermont the license laws were passed in 1921 but the accident fatalities were not reduced until 1923. This was probably due to the summer tourist travel. The United States bureau of public roads found that 21 per cent. of the vehicles on the Maine highways in 1924 were out-of-state registrations and the same survey in Vermont in 1926 showed 35 per cent.

Rates for population average in the nine states including Maine and Vermont, as compared with all the years before licensed, showed a reduction of 20 per cent. where the death rates are computed on the population basis and 24 per cent. was computed on a registration basis.

In making the survey the complexity of the situation was recognized and accounted for in various ways. For example, one cannot properly make a direct comparison with the death rates in a hilly and closely settled state like Connecticut and Massachusetts to that of a flat, more thinly settled state like Iowa. Likewise, in attempting to trace the effect of the license law in one particular state, one is met by the object that motor vehicle deaths in all states have been increasing on account of the rapid rise in the number of vehicles and that this general increase has fluctuated from year to year.

In commenting upon the results of this survey, Sidney J. Williams, director of the public safety division of the National Safety Council, said:

"Rarely do vital statistics, affected as they are by so many varying conditions, present such clear evidence of the effectiveness of one particular remedial measure. The results of this study may be accepted as conclusive evidence of the value of a license law with examination, properly administered, and of the need for enacting and administering such a law in every state of the Union. The states not now having license laws suffered a total of 17,000 motor vehicle fatalities in 1927. It may be confidently expected that if each of these states would enact a license law including examination of new drivers, with the proper machinery for enforcing it, there would be within a few years a saving of over 3000 lives per year." (*The National Underwriter*, December 27, 1928.)

New Automobile Coverage Installment Plan

A company prominent in the casualty lines has instituted an installment plan of paying automobile casualty insurance premiums in equal consecutive monthly installments from within two to six months, depending upon the size of the premiums.

The forms of protection to which it applies are automobile public liability, property damage, collision and plate glass insurance. Coverage bought under the plan will be available at the standard premium and commissions will be paid at the customary rates as collections are made. Policyholders may also suspend their insurance when cars are put up for the winter, just as they can when the policy is paid for in single premiums.

Under this plan the first installment which will be collected by the producers is to be reported to the company not later than the last day of the month following the month in which the policy becomes effective. Subsequent installments are to be paid not later than the last day of each month thereafter and if payment is not received within 15 days of any of the dates thus indicated the insurance will be subject to cancellation. In order to obtain insurance under this plan an additional charge of $.25 per installment will be made.

The plan enables car owners to exercise a preference between obtaining casualty insurance in accordance with the installment method and a payment of an annual premium hitherto required. Inasmuch as millions of owners have not availed themselves of the opportunity to gain for themselves and provide to the rest of the public the protection offered notably through liability and property damage insurance, it is believed that the annual payment method has operated to prevent a more widespread application of casualty insurance to present day needs.

In the company's opinion numerous considerations recommend the plan to the public, to car owners and to agents and brokers.

The plan in effect may be construed as an effort to bring about by voluntary action of automobile owners approximately the same result that lawmakers have sought through compulsory automobile insurance laws. Bills providing for such enactments have been introduced in many states during the past few years and such a statute is in force in Massachusetts.

While never in general use in casualty insurance, the plan is not a new idea in insurance, such a method having long been applied to accident insurance, while its most extensive and benevolent use has been in connection with life insurance.

British Companies Adopt Standard Automobile Policy Forms

The British companies transacting automobile insurance business have until now issued individual forms of policies and there has been a very considerable variation in wording and conditions; this has lead to a certain amount of dissatisfaction among insureds who have transferred their insurance from one company to another and found that a claim made under one policy could not be enforced under another. Now, however, this somewhat anomalous state of affairs is to be set right. The companies adhering to the "tariff" have agreed to simplify and standardize the business by employing one standard policy form for insurance on private-used automobiles. It is claimed that the policy form now being adopted gives better value to the insured than any cover previously obtainable. It differs considerably in detail from any form so far used. In the past different companies have defined in varying ways what accidental damage to the car their policies would cover. The new form provides that damage from any cause—including frost—will be made good, but there are the following specific exclusions: loss of use; depreciation; wear and tear; mechanical or electrical breakdowns, failures or breakages; damage to tires by application of brakes, or by road punctures, cuts or bursts.

With previous forms of policy, in the third party section, employees have been excluded from the indemnity against legal liability to passengers; in the new forms they will be excluded only when actually following their employment. The new policy also provides that where a relative or friend of the owner is injured while driving the car but is insured under some other policy, the indemnity must be claimed under the latter. If, however, there is no such insurance, the relative or friend will be indemnified on proof that he or she has never been refused as an assured by any other company. This cuts out the undesirable driver who may think to get compensation from a company through the policy of a relative or friend.

The new policy for the first time gives an exact definition of "private purposes" and "private car." A "private car" does not refer to the type but to the purpose for which it is used, while "private purposes" is set down as being social, domestic and pleasure purposes, or the use by the assured personally in carrying out his profession or occupation. The definition of private purposes especially excludes such activities as traveling to take orders for goods, racing, pace making, speed testing and the transport of merchandise or samples in connection with any trade or business. Any purpose in connection with the sale or manufacture of automobiles is expressly excluded. These definitions are of importance because they draw a line between what rightly may be insured as a private car and the one used for business purposes.

It would seem that the adoption of this standard form of policy would be of considerable advantage to both the companies and the insured. (*The Spectator*, December 6, 1928.)

The German Law on Private Insurance. Alfred Sieveking. Stevens & Sons, Ltd. London. 1927, Pp. 276.

Dr. Sieveking has translated into English the act relating to the control of private insurance business in Germany, May 12, 1901; the act relating to contracts of insurance, May 30, 1908; the parts of the German commercial code of 1861 relating to marine insurance, as revised in 1897, 1902 and 1908; and the general rules of marine insurance adopted in 1919 by the German marine underwriters in collaboration with Chambers of Commerce and other corporations. This work was prepared in collaboration with Professor Bruck of Hamburg University, who intends to compile the laws on private insurance of the whole world in about five or six volumes, and to issue a German and English edition of this vast undertaking.

Geographically, Germany is but a small part of the world; the insurance business transacted in Germany or effected by German law, forms, however, a very important item in the aggregate of such business transacted in the world. The insurance business is essentially an international business, and, as such, its success and efficient operation is promoted by law substantially uniform in basic provisions.

The International Law Association has tried to introduce a uniform insurance contract. This may not be feasible. The first steps toward uniformity would lie in a study of comparative law; and in order to compare the laws and to understand them, it is essential that the text be available in languages such as English and German. The movement for international uniformity in the law of commerce has been furthered by the work of men like Lord Phillimore and his associates for more than half a century in the work of the International Law Association.

Sickness Experience Under the National Health Insurance Scheme, Great Britain, 1920 to 1927

E. F. Spurgeon, of the Prudential Assurance Company, London, has prepared a study of the sickness experience in connection with National Health Insurance in Great Britain over the period 1920 to 1927. The original paper was presented to the 1928 Convention of the Royal Sanitary Institute, Plymouth, England. An abstract appears in the "National Insurance Gazette," London, for October 13, 1928.

The facts for men insured were as follows:

PERCENTAGES OF ACTUAL TO EXPECTED
Cost of Sickness and Disablement Benefit
Men

Year	Sickness			Disablement		
	Population insured	Societies for men	Selected societies	Population insured	Societies for men	Selected societies
1920	65	72	..	47	..	..
1921	67	66	66	56	59	54
1922	74	72	77	66	78	64
1923	66	65	71	74	83	71
1924	74	71	..	80	82	
1925	..	71	..	..	87	
1926	..	84*	..	..	98*	
1927	..	87*	..	..	112*	

For single and married women the results were as follows:

PERCENTAGES OF ACTUAL TO EXPECTED
Cost of Sickness and Disablement Benefit
Single and Married Women Combined

Year	Sickness			Disablement		
	Insured population	Societies for women	Selected societies	Insured population	Societies for women	Selected societies
1920	72	71	..	94	..	..
1921	80	78	78	116	103	103
1922	86	86	92	130	124	117
1923	85	86	95	146	140	133
1924	96	92	..	161	151	..
1925	..	100	..	..	171	..
1926	..	104*	..	..	194*	..
1927	..	108*	..	..	216*	..

*Estimated

Health Insurance in Australia

The National Insurance Bill was introduced into the Australian House of Representatives, September 14, 1928, by Dr. Earle C. G. Page, Commonwealth Treasurer. Dr. Page took pains to explain that this was an insurance bill and not a measure for the prevention of illness, accident or old age. No medical benefit was intended. A compensation of twenty-six shillings, sixpence, weekly was proposed. The administration of the benefits was to be in the hands of two classes of Friendly Societies,—ordinary approved societies, and general approved societies to be brought into existence and controlled by the National Insurance Board. The latter societies were to receive the flotsam and jetsam ineligible or expelled from the regular societies. The bill has proceeded to a second reading, debate under which has been adjourned. The bill may be again read and referred to Committee. (*Medical Journal of Australia*, October 6, 1928. Pp. 441-442.)

Origin of Automobile Insurance in England

The first trace of any attempt to underwrite automobile risks in England is found in a company registered in 1896 called "The National Cycle and Motor Car Insurance Company Limited." Its capital was £250,000, but whether it even started to carry out its ambitious plan, who its directors were, what rates it charged or what risks it covered, is entirely unknown; it ceased operations in 1898 in bankruptcy, and nothing remains that can throw any light on its brief career. For reasons already stated, it is unfair to regard this adventurous concern as the father of us all; to do so would be unjust to an office still with us and enjoying world-wide respect and prosperity, to wit, the Law Accident Insurance Society Limited. Unquestionably, the honour of pioneership in automobile insurance is due to this office, for it published its motor prospectuses and policy-forms very shortly after the passing of the "Emancipation" Act of November, 1896, when motor vehicles were, for the first time, legally entitled to travel on our roads (at speeds not exceeding 12 miles per hour) without a man walking in front with a red flag to warn all traffic of the coming danger. The Law Accident needed no reminder that its path was likely to be a thorny one when accepting such hazards and so, with commendable wisdom, it played for safety. Among the many exclusions in the policy, there was one that is very amusing in these days of high road-speeds. It was a stipulation that if, at the time of any mishap, the insured car were being driven contrary to the law then in force no claim could be substantiated under the policy. It has already been stated that the speed limit was 12 miles per hour, and it was doubtless considered wrong to indemnify anyone in respect of a mishap which was brought about while the law was being broken. Moreover, any speed in excess of 12 miles per hour was considered unsafe, and for some time this restriction was retained, of which more anon. The risks covered were surprisingly similar to those found in the common motor prospectus to-day. Third party indemnity, damage to car, fire, theft and personal accident benefits were all given, but in vastly different garments. The third party cover was limited in amount both as regards the total sum payable during any one period of insurance, and in respect of any one accident. The latter was usually limited to one-fifth of the former, and both could be increased by payment of a higher premium. Under the "damage to car" section, tyres, lamps and the first £2 10s, of all damage was always excluded, and liability under the policy was restricted to damage by collision. The fire hazard was, in those early days, far more serious than it is to-day. Nearly every car had what was known as tube ignition. Instead of having sparking plugs, their place was taken by a platinum tube kept at white heat (externally) by a bunsen burner which was fed by a small additional petrol tank. The petrol flowed from this tank either by means of pressure obtained by a small cycle tyre pump, or by gravity, to the burner. Thus, ignition was obtained in the same manner as a stationary gas engine. On many cars, the carburetor was quite close to the burner, and it was nothing uncommon for the latter to catch fire. The theft risk was restricted a good deal more than it is to-day, and the premiums were governed, not by the h. p., and value of the car, but by the benefits required, as in personal accident business. (*The Policy-Holder*, Manchester, October 10, 1928. P. 1563.)

Plan of a General People's Old Age Insurance in Switzerland

At the meeting of the Swiss National Parliament (Nationalrat) on June 7, 1928, the plan for people's old age insurance was outlined by the President of the Republic.

Old age insurance, in his opinion, should become exactly what sickness and accident insurance is, namely, a general insurance for all the people. Since this insurance is meant for all classes of people, contributions (premiums) from all classes are expected. Every person is supposed to contribute from the age of 19 to 65; the annual premium for males should be 18 francs and that for females 12 francs; besides these premiums every employer will have to contribute 12 francs per annum for every one of his employees. Other necessary funds should be contributed by the Swiss Union and the respective Cantons.

In general, it is intended to operate this old age insurance by the method of taxation; any other scheme would render it impossible because all those who are already, or soon will be, 65 years of age would require the amount of 3 milliard francs, which would be too great a burden for the finances of Switzerland. Every Canton should manage its business; decentralization of administration should be adopted as far as possible.

The old age annuities would amount to 200 francs for those of age 65, 150 francs for widows, 50 francs for part orphans and 100 francs for absolute orphans. These annuities should result from the contributions made by the insured and the employers.

The subsidies from the Republic and the respective Cantons should be used to increase the annuities. It is hoped that within a short period it will be possible to increase the annuities to 500 francs. (Neumann's *Zeitschrift fur Versicherungswesen*, Berlin, Volume 51, No. 32, page 755.)

In Italy the Instituto Nazionale de Assicurazioni or "Instituto," as the Italian Government Institution is Generally Called, Has Entered the Field of Social Insurance

The Instituto Nazionale de Assicurazioni or "Instituto," as the Italian government institution is generally called, has entered the field of social insurance, little developed in Italy, in a roundabout manner. While a government enterprise, it is by no means a government monopoly for life insurance only, but enjoys important privileges. The Fascist State is endeavoring to give protection to the working man, who forms its backbone and to that end has grouped all workers into syndicates, extending these syndicates also to the professional classes. By this method all acquisition cost is eliminated from the accounts of the Instituto, as all canvassing and collecting of premiums is done by the syndicates, and also by sick benefit funds, which in turn place their members under "group" contracts with the Instituto. If a member leaves a certain syndicate and joins another, it is an easy matter to transfer the insurance. The various local syndicates are again centralized into larger units. The method eliminates the compulsory feature (unlike the German social insurance) and has undoubted advantages.

National Council Plan for Adjustment of Large and Small Risk Rate

In connection with its newly adopted rate making procedure based upon a study of loss ratios by size of risk the National Council on Compensation Insurance says in part as follows:

1. The average indications of the experience point to the existence of a generally higher manual loss ratio on small risks than on large risks, but a careful analysis of the data convinces us that the removal of such a differential by the introduction of the so called "Loss Constant Program" would be unsatisfactory. Massachusetts and New York have been considered as exceptions and should so stand.

2. A comparison between the ratios of selected to manual premiums, on the one hand, and the indicated differentials on the other shows that a loading in manual rates sufficient to offset the deficiency in collected rates would eliminate, on the average, the existing differential by size of risk. This has led to the adoption of such a loading in lieu of the program of loss constants, the specific details being as follows:

> (*a*). *Experience Rating Plan.* Instead of applying a balancing factor equally to actual and expected losses the plan will apply through the medium of payroll modification factors the equivalent of a uniform loading of 3% on actual losses. This 3% factor is designed to offset the effect upon manual rate level that may be attributed to the character of the data reported for experience rating purposes as contrasted with data reported in Schedule "Z" for rate making purposes.

(*b*). *Manual Rates.*

(1). Rate Supervised States: The remainder of the total off-balance indicated by the ratio of collected to policy year manual premiums for the three latest policy years in each state will be eliminated by a loading in the manual rates. The full effect of this loading will be realized on risks not subject to experience rating, but owing to the credibility allowed to the risk experience only a partial effect will be realized on risks subject to experience rating. Thus a collected rate differential in favor of large risks will be produced and to a comparable extent the loss ratio differential by size will be offset.

(2). The ratio of collected to manual premiums does not represent solely the off-balance of rating plans in the non-supervised states. Consequently for these states the actual state indications will be limited to a maximum off-balance on the entire business of 5%, which is the approximate average indication of the supervised states.

(*c*). *Statistical Plan.* Although this program makes it unnecessary to introduce the revised statistical plan that has been adopted in New York, Massachusetts and Virginia it is nevertheless necessary to obtain certain additional experience on individual risks having a manual premium of $300 or more. It is proposed to extend the present Schedule "Z" call for the regulated states by requiring a report on each individual risk of $300 or more in annual premium which will show by manual classification the payrolls, collected rates, collected premiums and the total incurred losses split between indemnity and medical.

Aviation Insurance in America*

The part played by insurance in any industry is of such importance that it is generally accepted that if facilities for insuring were suddenly to be removed from the industrial structure, business would be brought to a standstill. Banks, for example, would have no security against disaster, credit would accordingly be stopped and the delicate machinery of finance would be found practically unworkable. The stability and security which insurance affords to business enterprise is in fact a fundamental requirement without which sound development is impossible.

It is therefore perhaps of some interest to regard the position

*This article by Major G. L. Lloyd of Barber & Baldwin was read before the International Civil Aeronautical Conference and is here reprinted by special permission of the author.

of the development of commercial aviation with relation to insurance. Particularly so when the main obstacle to progress in the building up of this industry is the patent danger to life and property embraced in the operation of aircraft. The interest of capital cannot be engaged when it cannot feel assured that in case of fire, tornado and unforeseen accident, more capital will not have to be found to continue. Until recently the larger financial interests in this country had not gone far in experimenting with the new means of transportation, but almost daily, evidence of an increased desire to participate in it is being shown and the vital need for stable facilities for insurance is becoming more and more apparent to everyone.

Since the very earliest days of aviation it has been possible to obtain insurance protection against the various risks to which an airplane and its operator are exposed but it is only within the last two years that there has been enough accomplished in the general development of commercial aviation to encourage the leading insurance companies of this country to take thought of the future when they will be called upon to supply the various forms of protection which the prudent manufacturer, dealer and operator of aircraft will require. Today there are not only a number of companies transacting this business but there is keen competition to obtain a share of the small volume available. It is felt that to be able to handle the business when it has grown to large proportions, experience should be gained now and further, the pioneer of today will be the leader in years to come.

The greatest difficulty confronting an insurance company entering this new field, is the difficulty of underwriting it satisfactorily. And it is proposed to deal in this paper mainly with the problems of the underwriter.

The form of protection needed by an operator who seeks adequate insurance is a comprehensive one, embracing the risks to which the aircraft itself is exposed, of fire, accidental damage, tornado, theft, and then the risks of liability to others, classified as public liability, passenger liability, property damage and workmen's compensation. In addition, other interests making use of aircraft require personal accident and life insurance and also cargo insurance. As all or any of these risks follow the aircraft and as a comprehensive automobile policy follows the automobile it might be thought at first sight that the underwriting of aviation risks would follow mainly the underwriting of automobile risks, and to a certain extent this is so, but, as the hazards are so widely different, the similarity is more evident theoretically than in practice as will be seen later. Marine insurance offers a more suitable comparison but even that bears only a remote resemblance to aviation insurance in actual practice.

It is proposed now to deal with each of the various coverages above mentioned, separately, but not as exhaustively as each perhaps deserves.

Fire

The form of cover usually needed in respect to this risk is against the risk of fire and lightning under all circumstances including the risk of transportation when the aircraft is disassembled and being transported. The contents fire rate of the hangar in which the machine is usually kept has to be taken into account, and in this respect the aviation underwriter receives valuable assistance from the fire rating boards throughout the country who, after inspection and an appraisal of the physical hazards of a hangar, promulgate a rate which serves as a valuable guide in estimating the premium for the risk. The next feature to be considered is the risk at other hangars at which the aircraft may be kept while in operation, *e. g.*, machines used on a regular service will be hangared in two or more hangars which may or may not benefit the risk depending on the construction, physical hazards, etc. at each. Then again, the risk of fire when filling the aircraft with gasoline, and during the starting and running of engines before flying commences, has to be included. In the air, fires are known to occur (due more often than not to defective insulation) and frequently on the occurrence of a serious accident the gasoline tanks are burst and the highly combustible gas then released, ignited by hot exhaust pipes, sets fire to the undamaged parts of the aircraft or its cargo. These are the various outstanding features presented by the fire risk and it is for the underwriter to take all into account and then with his knowledge of the particular machine, its construction (which has a very definite bearing on the flying portion of the fire risk) the hangars, the operational management, and the housekeeping, to fix an equitable rate which may vary from 2½% to as high as 7½%.

Accidental Damage

This cover, as must be obvious to everybody with even the slightest knowledge of aeronautics, is the most hazardous of any, and accordingly carries the highest rate and needs the most careful underwriting. The factors which have to be considered by the underwriter and which have a bearing, not only on the rate, but on the acceptability or otherwise of the risk are many. The most important single factor is the pilot and in this respect one has to consider generally, not only his experience as a pilot but whether this experience fits him for the particular flights offered for insurance. A pilot for example may have had a long experience in the southern states on landplanes and seaplanes but the risk offered may necessitate his flying in northern Ontario and until experience in that locality is gained he could hardly be considered a good risk for this form of cover. Then there is the machine itself, whether it is satisfactorily constructed, whether spare parts are available, whether its engine is sufficiently reliable and whether it is suitable for the type of work it is to do. The nature of flying then has to be considered as this of course reaches far into the matter of rates as also does the terrain over which the machine will fly, the meteorological conditions and the geographical limits within which it will be used. All this has to be weighed by the underwriter and a rate arrived at which will give to each factor its relative importance. The rates vary from 9% up to 20% and the insured is required to carry a first part of each loss depending on the value of the aircraft insured. This form of cover is also quoted for on a constructive total loss basis, *i. e.*, the company only to pay if damage sustained by the aircraft exceeds 75% or 85% of its value. This kind of cover is usually preferred by those who have good facilities for making their own repairs as they benefit considerably in the rate of premium.

Tornado, Cyclone and Windstorm

This risk varies according to the time of the year in which the policy is in force and according to the part of the country in which the machine insured is usually located. Even so the underwriter cannot regard this as a standard form of cover, as the aircraft may travel into the many tornado belts and further it has to be remembered that the conditions of windstorm necessary to destroy property as fragile as an airplane are frequently met with outside the defined areas where tornadoes are of sufficient intensity to tear down buildings. Again, few hangars are yet of that sturdy construction strong enough to withstand a wind of strength and the tornado hazard is a long way from being eliminated even when the aircraft is housed. In order to prevent small claims for damaged wing tips, etc., from bulking up the loss cost and as a consequence the premium, the first part of all claims are excluded from the policy cover. Rates are from ½% to 2%.

Theft, Robbery and Pilferage

Small pilferage claims are usually excluded from insurance by the insured agreeing to pay the first $25 of any loss. This is perhaps the one risk that offers very little difficulty in rating. Most risks are the same and as yet airplanes have not become a sufficiently marketable commodity to attract thieves.

Public Liability Excluding Passengers

The prospect of an airplane injuring persons other than those in it is more apparent than real. The number of accidents of this kind is very small and most of them have occurred while the aircraft has been on the ground and have been caused by propellers injuring careless bystanders. In the case of three motored machines this is a distinctly added hazard and the careful operator does well to have a man specially on hand to warn passengers and others against walking into the fast whirling propellers. Serious accidents to the public have, of course, occurred through falling aircraft and they are to be expected. There was the much reported case in Chicago where a flaming airship fell through the glass roof of a bank killing 13 and injuring 28 people. Machines engaged in oblique photographic work, advertising, pamphlet dropping, etc., all present more than the normal risk and have to be rated accordingly. Those flying from crowded aerodromes, those piloted by students from fields close to towns and those used for special performances at air meets have all to be carefully underwritten having regard to the skill and experience of the pilot, the construction of the machine, reliability of the engine, etc. Premiums vary from $95 per aircraft to $176 for limits of $5000 any one person and $10,000 any one accident.

Liability to Passengers

This section of the aviation insurance policy presents the most difficult problem of any to the underwriter. At present the exact responsibility of an operator to his passengers is very difficult to determine owing to the lack of legal authority on the point. If negligence can clearly be established, of course the usual common law doctrine applies, but as it is usually very doubtful to what extent negligence on the part of the operator was the cause of the accident, the degree of responsibility of the operator has to be weighed and it is here that there is so much diversity of opinion. It is commonly agreed that a signed release from liability, given by a passenger before a flight commences, may be of some assistance in negotiating the settlement of a claim for partial injury, but as a defense against the dependents of a deceased passenger it is of little avail. In the case of operators who conduct a regularly scheduled service from point to point, the following quotation from a recognized authority indicates the important extent of the liabilities of this class of operator:—
"The test will be whether there was a holding out as a common carrier; whether there was a definite schedule; uniform tariff; and a duty to accept passengers who applied for transportation. If these qualifications are met, the aircraft becomes a common carrier. Once the aircraft becomes a common carrier it thereupon has imposed upon it, all of the liabilities of a common carrier. It shall maintain a regular schedule; charge a uniform tariff; shall not discriminate as to business offered; and shall be subject to such regulations as are imposed on other carriers. Air carriers are in effect no different than land or sea carriers. They simply use another medium in which to carry their traffic. Hence they must be subject to all the duties and liabilities imposed on other carriers, and perhaps some additional ones, due to the more dangerous instrumentality used to accomplish the same result."

The method of rating this risk is to take the amount of indemnity required per passenger, multiply this by the maximum number of individuals carried at any one time and then assess the premium on the total liability any one accident. The reason for this is that cases are not wanting where all the passengers have been killed in one accident and as the aircraft passenger is, more often than not, a substantial member of the community a full loss is a definite possibility. From the premium arrived at in this manner a deduction has to be made as the aircraft does not always carry its full load of passengers and then a varying percentage deduction is made according to the degree of responsibility of the insured to his passengers. This varies from the private owner who takes friends for joy rides, up to the high responsibility of the common carrier to the public. Once again due consideration has to be given to the skill and experience of the pilot, the terrain and the routes over which the aircraft will be flown and the make of machine and engine. For high limits of indemnity, special percentage increases over the basic rates have to be determined according to the class of passenger carried and with due regard to the fact that the bulk of passenger injury claims are of a serious nature.

Property Damage

As in the case of the public liability risk there are fewer claims of this kind than one would expect. The bulk of them come from farmers whose crops are damaged by airplanes making forced landings, but that these claims can be more serious is instanced by the case of an abandoned airplane which fell through the roof of a stable at Westbury, Long Island, killing two valuable polo ponies. The risk from an underwriting standpoint is viewed in much the same way as that of the public liability risk with the exception that three motored aircraft are not rated up and the increasing danger of collision with other aircraft while landing and taxying at crowded aerodromes has to be remembered. Rates vary from $72 to $108 per aircraft for a limit of indemnity of $1,000 any one accident.

Personal Accident

This is the cover which is asked for more by the general public than by those actually engaged in operating aircraft and in practice it is the most awkward to handle. Not that the underwriting of the risk is any more difficult than that of accidental damage insurance, but the insured very rarely can give the needed specific particulars of the pilots or machines in which the flights may be made. A manufacturer, for example, wishes to take out personal accident insurance on his salesmen who may fly, a business man may on occasion wish to charter an airplane for a hurried trip and needs a policy which will cover him, an electric accessory or radio manufacturer may require certain employees to make flights for the purpose of testing certain products and wants a policy to cover them. In none of these cases is it usually possible for the would-be insurer to specify the pilot or machine in which the flights will be made and, in the present stage of the development of aviation, the sound underwriter is unable to give personal accident insurance unless he can approve in advance of the pilot, the aircraft, the route and nature of the flying and the geographical limits within which the flights will be made. The insurance can readily be granted to pilots whose skill and experience warrant that they will be normal risks for the kind of flying in which they will engage. Facilities are also available for insurance by means of coupons for specific flights similar to the railroad accident ticket policies with which all travellers are familiar, but the amount of insurance which can be secured in this manner is very limited and then the flying has to be confined to passenger or mail services operated on a regular schedule or otherwise specifically approved. The business man who may fly in any aircraft available when he needs it can at present only obtain personal accident insurance by taking the cover for each specific flight and that involves separate notification to the underwriter each time a flight is made giving whatever particulars are required regarding the flight. Rates vary from 75c. to $1.50 per $1,000 per flying day for a special flight and for an annual policy from $15 to $50 per $1,000, the benefit being payable in the event of death only. Proportionate increases are made if dismemberment benefits or weekly disability benefits are required.

Workmen's Compensation

The risk of an aircraft operator is dealt with in the various manuals of workmen's compensation insurance of the individual states, and classifications are allotted to employees flying and non-flying and in respect to pilots according to whether or not they engage in demonstration, testing, instructional or stunt flying. The classification for pilots is broad and in individual cases often bears hardly on an operator. If his flying for example consists of a small amount of instructional flying he is required to pay the higher classification rate even though in every other respect the flying risk may be very much better than the normal. This class of cover is complicated by the fact that in some states the Act will apply while the employee is in his own state and also if he is injured outside it, but in other states the employee may choose to take the benefits of the Act provided by his own state or those of the state in which he may be injured. Further, in some states where there is a compulsory state adminstered compensation fund, the fund will protect the employer while his employee is in his home state but if he is injured in another state the employer has to look elsewhere for protection. This particular liability of the aircraft operator might well be the subject of special legislation by the federal government on the ground that the nature of flying brings it within the realm of interstate commerce. Rates of course vary according to the benefits provided by the individual workmen's compensation or employer's liability acts and run as high as $22.12 per $100 of wages.

Cargo

The risk of cargo sent by air, strangely enough, is a less risk than damage to the same cargo while in transit but not being flown, and very favorable rates obtain, varying from 1/16% to 1%. The kind of merchandise, value per consignment, aggregate liability, route over which it will be flown, the pilots, aircraft, etc., have all to be considered in the rating of these risks and the cover is effective usually from the time the cargo is placed in the aircraft up to the time it is removed at its destination.

Life

More perhaps has been written on this subject in relation to flying than on any other branch of insurance for aviators and it is only necessary to state here that rates are charged in addition to the usual life premium according to the underwriters appraisal of the flying hazard. The rates vary from $5 to $25 per $1,000 according to such appraisal. A special declaration form is completed giving information regarding the proposer's past experience as a pilot and his proposed future flying activities and then an additional rate is quoted for the flying hazard, this additional rate being subject to review each year in the light of then existing circumstances.

It may be said that the particularity with which this insurance is underwritten is probably unnecessary, but it must be borne in mind that the rates at which the risks can be written with results sufficiently satisfactory to insurance companies, are very high and it is of the first importance that those concerns who have the best pilots, aircraft, operating management, etc., should benefit in their insurance premiums. As it is the endeavor of the insurance companies always to reduce premiums to the lowest figure in order to encourage operators to insure, the particularity referred to must remain when so large a number of operators go without insurance. In addition to giving preference in rates to those warranting it, various discounts are allowed, *viz:* if there are fewer pilots than machines insured, if the premiums are stipulated as a minimum or if there are various covers taken out on one aircraft and so a spread of risk obtained. In every way efforts are made to reduce the premium which, owing to the hazardous nature of the risks covered, is a burdensome charge to the operator. And in this connection it is perhaps fitting that the matter of competition in rates between insurance companies should be referred to. The rates mentioned above vary greatly, but as they have been arrived at by experienced underwriters transacting this business over a long period, they appear a safe enough guide to others who contemplate entering the field. This, however, is hardly the case as unless the rates are applied properly to each risk they can result in a heavy underwriting loss. It is almost invariably the practice of a newcomer into any insurance field to offer lower rates in order to attract a volume of premium and it follows therefore that competition unless very soundly controlled can do a great deal of harm to the aviation insurance companies already established. If there were a wholesale disturbance of rates and those companies pioneering in this new field were to sustain heavy losses so that as a consequence they decided to withdraw, no one would then be bold enough to venture where others with experience had failed. This could easily mean that operators would be unable to obtain insurance and the whole development of aviation would be most seriously affected.

Some insurance companies in America have gone further than merely to provide facilities for insuring aircraft. They have set up an elaborate inspection and engineering service manned by carefully selected engineers located at strategic points throughout the country which service, by constant inspection of risks, by suggesting ways and means for reducing hazards and by improving safety precautions, is playing an important part not only in helping to reduce insurance rates but in assisting this new industry to cut down to the minimum the serious accidents which have to be avoided if air transportation is to succeed. The remarkably successful operations of the inspection and engineering services of the American steam boiler and workmen's compensation insurance companies in reducing industrial accidents, gives point to this phase of the part insurance is playing to assist the development of aviation in America.

The history of Marine insurance seems to offer the best analogy of how aviation insurance may be expected to develop. At first the risks insured were few and the dangers of loss great, and it was not unusual for rates as high as 20% to be charged on hulls insured. The sea captains themselves were the underwriters, and by carefully selecting the masters and vessels whom they knew well, and by rating the risks according to the individual merits of each they managed to keep the basis of underwriting sound and helped to build the giant merchant marine of today. In much the same way the prosaic work of the aviation underwriter is colored by entering into the varied details of each flying venture submitted to him. He is an experienced practical pilot himself and knowing the pilots, machines, territory and what each kind of flying entails, he fixes his rates and so does his mite towards giving the new infant industry a sound and healthy growth.

PERSONAL NOTES

Carl M. Hansen is now President of the International Reinsurance Corporation in Los Angeles.

Charles E. Heath formerly Chief Examiner of Casualty Companies in the New York Insurance Department is now Vice-President and Secretary of the Standard Surety and Casualty Company of New York in New York City.

A. L. Kirkpatrick previously Secretary and Treasurer of the Casualty Information Clearing House is now with the Continental Casualty Company in Chicago.

James D. Maddrill, formerly Vice-President—General Manager of the Union Labor Life Insurance Company is now a Consulting Actuary in New York City.

George D. Moore, formerly Assistant Secretary and Actuary of the Royal Indemnity Company is now Comptroller of the

Standard Surety and Casualty Company of New York in New York City.

Louis H. Mueller is now Vice-President and Treasurer of the Associated Indemnity Corporation in San Francisco.

Olive E. Outwater previously with The Maccabees is now with the Benefit Association of Railway Employees in Chicago.

Thomas W. Broughton is now General Superintendent of the Eastern Department of the Zurich General Accident and Liability Insurance Company in New York City.

James M. Bugbee formerly Secretary-Treasurer of The Associated Companies is now with the Maryland Casualty Company in Baltimore.

W. H. Egli is now Assistant Manager of the Zurich General Accident and Liability Insurance Company in Chicago.

Leslie L. Hall, formerly Secretary of the Rating Department of the National Council on Compensation Insurance is now Secretary-Treasurer of the National Bureau of Casualty and Surety Underwriters in New York City.

William D. Hall, previously with the Western Insurance Companies is now with the Motor City Agency in Detroit.

Edward S. Jensen is now Actuary of the Great Republic Life Insurance Company in Los Angeles.

Carl L. Kirk is now Actuary of the Zurich General Accident and Liability Insurance Company in Chicago.

Earl H. Nicholson is now Assistant to Executive Vice-President of the Inter-Southern Life Insurance Company in Louisville.

F. S. Perryman is now Actuary and Assistant Secretary of the Royal Indemnity Company in New York City.

Herbert P. Stellwagen, formerly Secretary-Treasurer of the National Bureau of Casualty and Surety Underwriters is now Assistant Vice-President of the Indemnity Insurance Company of North America in Philadelphia.

Dr. I. M. Rubinow has resigned as Executive Director of the Jewish Welfare Society and is now Executive Director of the Zionist Organization of America in New York City.

Antonio T. Traversi is now a Consulting Actuary and Accountant in Sydney, Australia.

Grace G. Merkle has left the American Telephone and Telegraph Company and is with the Illinois Bell Telephone Company in Chicago.

Joseph Raywid, formerly President of the Underwriter's Statistical Bureau is now Manager of the Statistical Service Department, Library Bureau Division, Remington Rand Business Service, Inc., in New York City.

Arthur Sawyer, previously Actuary of the London Guarantee and Accident Company is now with the Globe Indemnity in Newark.

Armand Sommer, formerly Manager of the Accident and Health Department in the Chicago Branch Office of the Standard Accident Insuranoe Company is now Production Manager in the Commercial Accident and Health Department of the General Accident, Fire and Life Assurance Corporation in Philadelphia.

Floyd E. Young, formerly Associate Actuary of the Western Union Life Insurance Company is now Assistant Secretary and Actuary of the National Fidelity Life Insurance Company in Kansas City.

LEGAL NOTES

BY

SAUL B. ACKERMAN
(OF THE NEW YORK BAR)

AUTOMOBILE

Lack of Co-operation:—(Guein *vs.* Indemnity Insurance Co. of North America. 142 Atlantic 268.)

A person injured in an automobile accident obtained a judgment against one covered by liability insurance. He was unable to collect and brought an action in Connecticut against the insurance company, which defended on the ground of lack of co-operation by the assured. The assured had given a statement to the company absolving himself from blame and at the trial testified favorably for the person injured. The person injured claimed that lack of co-operation is no longer a defense under the laws of Connecticut.

Chapter 331 of the Public Acts of 1919 provided that every insurance company which shall issue a policy insuring against loss by reason of liability for bodily injury or death by accident, or damage to property "shall, whenever a loss occurs under said policy, become absolutely liable, and the payment of said loss shall not depend upon the satisfaction by the assured of a final judgment against him for loss, damage or death occasioned by said casualty." It further provided that no such policy shall be canceled or annulled by any agreement between the company and the assured after the latter has become responsible for any such loss, and that a judgment creditor in an action against the assured for such loss or damage shall be subrogated to the rights of the assured under the policy, if the judgment is not satisfied within 30 days after it is rendered.

Judgment was obtained against the company after trial and the company appealed.

The Supreme Court of Errors of Connecticut affirmed the judgment, holding that there was sufficient evidence to overcome the contention of lack of co-operation. The court, however, overruled the contention that lack of co-operation was no longer a defense. In this connection the court said:

"The statute, to effectuate its manifest purpose to safeguard the rights of the injured person, prohibits any cancellation or annulment of the policy by any agreement between the insurance company and the assured after the injury. A failure of the assured to comply with any of the terms of the policy, which compliance is under the policy a condition precedent to his recovery, does not constitute such an annulment or cancellation by agreement with the insurance company as to come within the prohibition of the statute. As we have said, the statute gives the injured person the same rights as the assured under the policy, but no greater rights, and does not, for the benefit of the injured person, deprive the company of any defenses which it may have under the policy, save only the one specifically mentioned in the statute. If, therefore, the assured, . . . breached the condition of the policy requiring him to render to the defendant 'all co-operation and assistance in his power,' there can be no recovery under the policy."

Accident

Freezing:—(National Life Ins. Co. *vs.* Patrick. 162 N. E. 680.)

In an action on an accident policy, the question arose as to whether the insured's loss was covered by the policy. His fingers were frozen while he was working at his occupation of unloading coal and as a result had to be amputated. The assured obtained judgment after trial and the company appealed.

The Court of Appeals of Ohio affirmed the judgment. The court in finding that the loss was suffered from injuries effected solely through external, violent, and accidental means, expressed itself as follows:

"The first claim is that the freezing of the fingers was not accidental. This court has heretofore defined what an 'accident' is under the terms of an insurance policy, and it again cites the following definitions:

" 'Accident is defined by Worcester to be an event proceeding from an unknown cause or happening without the design of the agent; an unforeseen event; incident; casualty; chance;' so that death is accidental where the injury was not designed nor the danger known. Burkhard *vs.* Travelers Ins. Co., 102 Pa. 262, 268, 48 Am. Rep. 205.

"Accidental signifies 'Happening by chance or unexpectedly; taking place not according to the usual course of things; casual; fortuitous. We speak of a thing as accidental when it falls to us as by chance and not in the regular course of things; as an accidental meeting, an accidental advantage,' etc. North American Life & Accident Ins. Co. *vs.* Burroughs, 69 Pa. (19 P. F. Smith) 43, 51, 8 Am. Rep. 212.

"From these definitions it is our holding that under the facts in the case the injury was due to accidental means. Had the plaintiff's fingers come in contact with a hot iron without any volition and in an unusual and unexpected manner, there would be no question that the injury resulted from accidental means. Because the injury arose from a freezing atmosphere, the disastrous result of which was unusual and unexpected, the cause of the injury was no less an accident. In one case it is heat, and in the other case it is cold, and from the evidence in the case it appears that there was no reason for plaintiff believing that his fingers would freeze to the point where amputation was necessary, simply because the weather was cold. There is no evidence that he was reckless in caring for himself as much as was possible while he was performing his work in the freezing cold weather. Hence we think, under the record, that the injury resulted from accidental means."

BURGLARY

Reformation of Contract:—(D. R. Paskie & Co., *vs.* Commercial C. Ins. Co. 229 N. Y. S. 121.)

A policy was issued insuring against loss by burglary from a safe of certain furs and skins. The policy erroneously described the premises as those from which the assured had recently removed and which were the premises covered in previous policies issued by the same company. The policy also erroneously described the safe as the one used in the old premises. The assured notified the company of the changes and asked it to write the new policy accordingly. The company agreed to do so. After the policy was issued the assured notified the company of the errors. The company corrected the address but did not make the other corrections. Subsequently the company corrected the floor number, but made no other corrections. The clause relating to the fact of no burglary within the past five years was marked "no exception" although the assured had informed the agent of the company of a small loss from burglary within the past five years. The assured suffered a loss and brought an action to reform the policy so as to correct the misstatement and to recover on the policy as corrected. The complaint alleged the above and alleged that the errors were inserted by mutual mistake or if not by mistake on the part of the company, with intent to defraud the assured. The lower court dismissed this complaint as insufficient and the assured appealed.

The Supreme Court of New York, Appellate Division, First Department, reversed the judgment of the lower court, holding that the complaint stated a good cause of action and if proved, the assured was entitled to the relief asked and a money judgment. After pointing out that in cases of mutual mistake or fraud, reformation might be had, the court dealt with the contention of the company that by receiving and retaining the policy the assured waived any objection thereto. The court disposed of it by quoting the following from Cooley's Briefs on Insurance (2d Ed.) p. 1446:

"The weight of authority favors the proposition that the issuance of the policy on the preparation of the application with a clause varying from the intention of the parties will itself entitle the insured to a reformation, though the mistake could have been discovered by a perusal of the contract itself. Thus, in Equitable Safety Ins. Co. *v.* Hearne, 20 Wall. 494, 226 Ed. 398, affirming 11 Fed. Cas. 965, No. 6, 229, it was said that the insured had a right to assume that the policy would accurately conform to the preliminary agreement by letter, and to rest confidently on that belief. The theory, as shown by Hay *v.* Star Fire Ins. Co., 77 N. Y. 235, 240, 33 Am. Rep. 607, is that the party whose duty it is to prepare a written contract in accordance with a previous agreement, and who prepares one materially changing the agreement, and delivers it as in accordance therewith, commits a fraud against which equity will give relief."

Employers' Liability

Transportation to Work:—(E. Clemens Hoist Co. *vs.* Hartford Accident & Indemnity Co. 27 F (20) 42.)

A policy was issued indemnifying an employer against loss by reason of liability on account of injuries suffered by an employee. The particular work was specifically mentioned in the policy. Certain of the employees were injured while being transported by motor truck by the employer to the farm, two days before they were to begin under the contract. Action was brought against the employer which he settled upon the refusal of the insurance company to defend. He then sued the company on the policy, but his complaint was dismissed as not stating a good cause of action. The employer appealed.

The Circuit Court of Appeals, Ninth Federal Circuit, reversed the judgment holding that the employer was entitled to recover if his complaint was established. The reasons for the decision are apparent in the following excerpt from the opinion:

"The fact that hop picking was not to begin until two days later does not, we think, affect the question of the defendant's liability. Said the court in Cudahy Packing Co. *vs.* Parramore, 263 U. S. 418, 426, 44 S. Ct. 153, 155 (68 L. Ed. 366, 30 A. L. R. 532): 'We attach no importance to the fact that the accident happened a few minutes before the time Parramore was to begin work, and was, therefore, to that extent, outside the specified hours of employment. The employment contemplated his entry upon the departure from the premises, as much as it contemplated his working there, and must include a reasonable interval of time for that purpose.'

"As against the proposition that the Rogans were employees at the time of the accident, the defendant cites Wells *vs.* Clark & Wilson Lumber Co., 114 Or. 297, 235 P. 283, and Susznick *vs.* Alger Logging Co., 76 Or. 189, 147 P. 922, Ann. Cas. 1817C, 700. But in those cases the plaintiffs were held not to be employees for the reason that no contract of employment had been made with them, and they were but applicants for employment at the time when they sustained personal injuries. It is to be observed, also, that decision in those cases depended upon the construction of provisions of the Workmen's Compensation Act of Oregon (Laws 113, P. 188), while in the case at bar the court is called upon to construe the provisions of a contract of accident insurance, and to determine the scope of the protection intended to be afforded thereby."

Depository Bond

Subrogation:—(Maryland Casualty Co. *vs.* Fontz. 27 F. (20) 423.)

A depository bond was issued to a State Treasurer to secure his deposits in a national bank in the sum of $50,000. The bank became insolvent while the Treasurer had on deposit $90,000. The Treasurer obtained from the surety company $50,000, the amount of the bond. The receiver of the bank paid a 50% dividend and from this dividend the Treasurer was reimbursed for the balance of his loss. The surety company sued the receiver for the balance of the dividend above the amount paid by the receiver to the State Treasurer.

The Federal District Court, M. D. North Carolina held that the surety was entitled to recover the amount stated, that is the difference between the full dividend of 50% and the amount actually paid, but which was not paid because the Treasurer was reimbursed by the surety company. The court said:

"In the absence of any intervening equities, and in view of the express contract of indemnity executed by the bank to the surety company, I can see no valid reason why the surety company should be denied its right under the contract to prove its claim for the amount of its loss. The contract on the part of the bank with the surety company was a binding obligation on its part to repay whatever loss the surety might sustain. Such a debt seems as valid as a debt to the depositors who placed their money in the bank. The contract should be given full force and effect, and the courts should be slow to set such contracts at naught. If surety companies are denied redress on their indemnity contracts, where there are no intervening equities in favor of the obligor, the premiums upon such contracts will be materially increased, with the result that banks will be compelled to deposit collateral securities to secure the payment of public funds."

FIDELITY

Change of Occupation:—(Centreville State Bank *vs.* National Surety Co. 27 Fed. (20) 552.)

A fidelity bond was issued to a bank insuring it against loss by the embezzlement, larceny, etc., of one B, its president. Subsequently, without the knowledge of the company, B ceased to be the president of the bank and became its cashier. While he was cashier he embezzled funds of the bank. The bank sued on the bond.

The Federal District Court for the District of Kansas, Third Division are judgment for the surety company, in an action by the bank on the bond. The court said in part:

"In Frost on The Law of Guaranty Insurance (2d Ed.) § 113, p. 348, it is said: 'One of the implied conditions of all policies of fidelity insurance is that the "risk" shall continue to occupy the position in the employ of the insured designated in the proposal or application for the policy. Unless the policy expressly provides for changes in such employment, as, for example, expressly authorizing employment in more than one position, or changes from one position to another, there can be no recovery had by the insured from the insurer on account of defaults of the "risk" occurring while performing duties of a position materially different from that designated in such proposal or application. The reason which induces the courts to imply such a condition as the foregoing, is that fidelity insurance companies write policies for certain designated premiums, which vary in amount according to the nature and extent of the risk incurred. If, for example, the insured asks the insurer to write a policy on a person employed as a bookkeeper in a bank, the insurer might be willing to do this at very low premium, owing to the small chance of its ever being required to make good any losses occasioned by such person's dishonesty while occupying the position of bookkeeper for the insured. However, if it lay within the power of the insured to change the employment at will of such person, and immediately after issuing the policy he should appoint him cashier, instead of bookkeeper, it would amount to little less than a fraud upon the insurer to hold the latter liable for his acts and increased responsibilities not in contemplation of both parties at the time the policy was issued.'

"In Farmers', etc., *vs.* U. S. F. & G. Co., 28 S. D. 315, 133 N. W. 247, 36 L. R. A. (N. S.) 1152, it is said:

'In the absence of a provision authorizing employment in more than one position, or changes from one position to another, there can be no recovery for the default of an employee while occupying a position materially different from that designated in the proposal or application.'

"In Bassett *vs.* American Surety Co., 21 Ill. App. 477, it is said:

'Any dealings between the principal and obligee amounting to a departure from the contract by which the surety is bound by materially varying or enlarging his liability without his consent will generally operate to discharge him. It is said: 'The same result will follow, as a general thing, where the principal acts in another office or capacity from that designated in the contract of suretyship, or where his responsibilities in the same office are increased.' "

Owners', Landlords' and Tenants' Liability

Coverage:—(Marcus *vs.* United States Casualty Co. 249 N. Y. 21; 162 N. E. 571.)

The owners of a building obtained a policy which among others contained the following clause:

"Condition A. This policy does not cover . . . . (3) loss arising from bodily injuries sustained by reason of any elevator, its car or platform, or the shaft or hoistway used in the operation thereof."

In a schedule annexed to the policy there was described "a hand power rope hoist—not covered."

An employee of one of the lessees was injured by falling to the bottom of the elevator shaft when he opened the door mistaking it for the door to the toilet. He brought action against the owners and recovered judgment. The insurance company had refused to defend. The owners then sued the company for their loss and recovered judgment which was sustained by the Appellate Division of New York. An appeal was taken by the defendant to the Court of Appeals.

The Court of Appeals of New York reversed the judgment and dismissed the complaint, holding that the owners were not covered by the policy for this accident. The following excerpt is taken from the opinion:

"With this history of the insurance in mind, we may again ask whether the policy covered the accident. It did not cover any loss arising from bodily injuries sustained by reason of any elevator shaft or hoistway used in the operation of any elevator. Borger was hurt by falling down the elevator shaft. But for the shaft he would not have been hurt. The fact that he pushed open the doors leading to the shaft by mistake is immaterial. He may have mistaken the doors because the hallway was dark, or because they were not properly marked and distinguished from the entrance to the toilet. But the injury he received, causing the loss, was due to the shaftway. It may be suggested, with some reason that, if the door was properly marked 'elevator,' the accident would not have happened, and that therefore the proximate cause was the failure to thus give proper warning. We are dealing, however, with the terms of a policy, of a contract which cannot be refined beyond the intents and purposes of the parties. This is an agreement made between the Kanes and the insurance company. The injured person has no better or other rights than the insured. What did the insured contract for? The United States Casualty Company agreed to insure them against losses arising out of bodily injuries received in the building 102 Front Street unless the injury was sustained by reason of the elevator shaft or the hoistway. This injury was received by reason of the elevator shaft and the hoistway, and therefore was not covered by the policy.

"Policies of insurance, when capable with equal reason of one or more interpretations are construed against the insurer and in favor of the insured. This is upon the theory that the insurance company generally drafts the terms of the instrument. No liberality of construction, however, in favor of the insured permits the inclusion of a risk which has been expressly excluded by the terms of the contract. This policy must be given a reasonable interpretation and the words used their ordinary and usual meaning. Injuries sustained by reason of the elevator shaft cannot be limited on the principle or proximate cause as vaguely understood in legal terminology. We cannot imagine that the parties in using these words understood that, if a person fell down the shaft because the hallway was dark the bodily injuries would be sustained by reason of the darkness, not because of the elevator shaft. This would virtually be making a new contract for the parties."

WORKMEN'S COMPENSATION

Partnership:—(Fidelity Union Casualty Co. *vs.* Hammock 5 S. W. (2d) 812.)

A policy of compensation insurance was issued to a Texas partnership. The policy contained the names of X and Y as the partners composing the firm and the firm name was X and Y. X had died before the policy was issued and by agreement between Y and the heirs of X the business of the firm was continued under the same name. An employee was killed and his dependent obtained an award against the insurance company. The company appealed on the ground that by the death of X the firm of X and Y was by law dissolved and ended, and there was no such firm in existence and hence there were no persons employed by such firm to be covered by the policy.

The Court of Civil Appeals of Texas affirmed the award and overruled the contention of the company. The court pointed out that the heirs of X had the right and authority to agree with Y, the surviving partner, that their shares in the firm property might continue to be used by the partnership and the business of the firm continued under the original firm name. There was no contention that the policy should be held void, because of any false or fraudulent representation in its procurement, which would be material to the risk assumed. The court was of the opinion that the intention of the company was to cover the employees of the firm, managed by Y and known as X and Y, and that it was not concerned as to who, in fact, composed the partnership. The court went on to point out that even without the consent of the heirs of X, Y had by law the exclusive right to the possession and control of the firm assets until he could dispose of them to the best advantage of Y and the heirs of X and the partnership affairs were settled. Y having this right he could have continued the business pending its winding up and thus had the right to take out a compensation policy under the firm name of X and Y.

CASUALTY ACTUARIAL SOCIETY

NOVEMBER 23, 1928

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SANFORD B. PERKINS........................1932

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†Elected: HENRY FARRER...............................1929
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EVERETT S. FALLOW..........................1930
WILLIAM F. ROEBER..........................1931
WINFIELD W. GREENE.........................1931
LEON S. SENIOR.............................1931

*Terms expire at the annual meeting in November, 1929.
†Terms expire at the annual meeting in November of the year given.

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ABSTRACT FROM THE MINUTES OF THE FIFTEENTH ANNUAL MEETING

NOVEMBER 23, 1928.

The fifteenth annual (thirty-first regular) meeting of the Casualty Actuarial Society was held at the Hotel Biltmore, New York, on Friday, November 23, 1928.

President Perkins called the meeting to order at 10:20 A. M. The roll was called showing the following forty-seven Fellows and twenty-four Associates present:

FELLOWS

BARBER	GRAHAM, C. M.	MULLANEY
BLANCHARD	GRAHAM, T. B.	OTIS
BREIBY	HAMMOND	OUTWATER
BROWN, F. S.	HOBBS	PERKINS
BURLING	JACKSON, C. W.	PINNEY
COMSTOCK	JONES, F. R.	ROEBER
CORCORAN	KOPF	RYAN
DEKAY	LESLIE	SCHEITLIN
DEUTSCHBERGER	LINDER	SENIOR
DORWEILER	MASTERSON	SMITH, C. G.
DUNLAP	MAYCRINK	TARBELL
FALLOW	MCMANUS	VALERIUS
FLYNN	MICHELBACHER	VAN TUYL
FONDILLER	MONTGOMERY	WHEELER
GINSBURGH	MOORE, G. D.	WOLFE
GLOVER	MORRIS	

ASSOCIATES

AINLEY	GILDEA	POISSANT
AULT	GLENN	SKELDING
BATEMAN	HALL, L. L.	SKILLINGS
BUGBEE	JONES, L. D.	SMITH, A. G.
CAHILL	KORMES	SOMMER
CONSTABLE	NEWHALL	SPENCER
DAVIES	PERRYMAN	VOOGT
FLEMING	PIKE	UHL

President Perkins read his presidential address.

The minutes of the meeting held May 25, 1928 were approved as printed in the *Proceedings*.

The Secretary-Treasurer read the report of the Council and upon motion it was adopted by the Society. Diplomas had been sent to W. H. Burling, W. P. Comstock, R. M. Marshall and N. M. Valerius, who had been admitted as Fellows under the 1928 examinations. F. S. Perryman had been enrolled as an Associate without examination.

The Council selected the following and recommended to the Society that they be admitted as Fellows without examination under the terms of Article III of the Constitution:

F. Robertson Jones, Secretary-Treasurer, Workmen's Compensation Publicity Bureau, New York.

C. A. Kulp, Professor of Insurance, University of Pennsylvania, Philadelphia, Pa.

Edward C. Lunt, Vice President, Great American Indemnity Company, New York.

After ballot these nominees were declared duly elected Fellows.

The Council reported that the following Associates had passed the necessary examinations and had been admitted as Fellows:

W. H. Burling	R. M. Marshall
W. P. Comstock	N. M. Valerius

The Council also reported that the following candidates had passed the necessary examinations and had been enrolled as Associates:

John W. Ainley	J. Bryan Glenn
A. E. Bateman	S. S. Lipkind
Perry S. Bower	Karl Newhall
James M. Cahill	Kenneth B. Piper
Edward L. Faith	D. M. Pruitt

The reports of the Secretary-Treasurer (Richard Fondiller) and of the Librarian (William Breiby) were read and accepted. The annual report of finances follows:

ANNUAL REPORT OF FINANCES

Cash receipts and disbursements from November 1, 1927 to October 31, 1928.

Income

On deposit on Nov. 1, 1927 in Fidelity Trust Company		$ 431.89
Members' Dues	$2,390.00	
Sales of Proceedings	1,600.12	
Library Fund	300.00	
Examination Fees	215.00	
Luncheons	270.00	
Liberty Bonds and Coupons	1,041.87	5,816.99
Total		$6,248.88

Disbursements

Printing and Stationery	$3,349.06
Postage, Telegrams and Express	102.61
Secretarial Work	371.14
Library Fund	94.94
Luncheons	328.50
Examination Expense	304.77
Purchase of Bonds	1,012.23
Miscellaneous	118.36
	$5,681.61
On deposit on Oct. 31, 1928 in Fidelity Trust Company	567.27
Total	$6,248.88

Income	$5,816.99
Disbursements	5,681.61
Gain	$ 135.38
1927 Bank Balance	431.89
1928 Bank Balance	$ 567.27

Assets

Cash in Bank	$ 567.27
Investments	1,000.00
Total	$1,567.27

The auditing Committee (Harwood E. Ryan, Chairman) reported that the books of the Secretary-Treasurer had been audited and his accounts verified.

The Examination Committee (Sidney D. Pinney, Chairman) submitted a report of which the following is a summary:

1928 EXAMINATIONS—SUCCESSFUL CANDIDATES

The following is a list of those who have passed the examinations held by the Society on May 2nd and 3rd, 1928:

ASSOCIATESHIP—PART I

John W. Ainley	Edward L. Faith
Perry S. Bower	J. Bryan Glenn
Charles H. Burhans	S. S. Lipkind
James M. Cahill	D. M. Pruitt

ASSOCIATESHIP—PART II

John W. Ainley	T. F. Hunton
Perry S. Bower	S. S. Lipkind
James M. Cahill	L. W. Messinger
Edward L. Faith	Karl Newhall
J. Bryan Glenn	

FELLOWSHIP—PART I

A. E. Bateman	Kenneth B. Piper
W. H. Burling	N. M. Valerius
W. P. Comstock	

FELLOWSHIP—PART II

W. H. Burling	N. M. Valerius
R. M. Marshall	

The Council's re-election of Robert J. McManus as Editor and William Breiby as Librarian, subject to confirmation by the Society, was announced.

The annual elections were then held and the following officers and members of the Council were declared elected:

President	George D. Moore
Vice President	Sidney D. Pinney
Vice President	Paul Dorweiler
Secretary-Treasurer	Richard Fondiller
Editor	Robert J. McManus
Librarian	William Breiby

Members of Council (terms expire in 1931).

W. F. Roeber W. W. Greene L. S. Senior

Member of Council (term expires in 1929).

B. A. Hunt

In accordance with the Constitutional requirements notice of the following proposed amendment to the Constitution was given. This amendment was, on motion, adopted to read as follows:

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.

The following topics for which speakers had been selected were then informally discussed:

Balance Sheets and Income Statements of Casualty Companies from the Standpoint of Policyholders and Stockholders.

Unit Plan of Reporting Workmen's Compensation Experience to a Central Bureau.

Recess was taken until 2:00 P. M.

By invitation of the Committee on Program, Mr. Charles Deckelman, Manager Home Office Claim Department, Travelers Insurance Company, addressed the Society on "Claims," and Stephen B. Sweeney, Assistant Professor of Insurance, University of Pennsylvania, Philadelphia, Pa., addressed the Society on "Aircraft Insurance".

The papers printed in this Number were read or presented.

Upon motion, the meeting adjourned at 4:40 P. M.

VOL. XV, PART II NO. 32

PROCEEDINGS

MAY 24, 1929

DUTIES OF THE PRESENT DAY CASUALTY ACTUARY

PRESIDENTIAL ADDRESS, GEORGE D. MOORE

Casualty insurance is now entering a critical stage in its career. A review of conditions arising during the last few months confirms this statement. During this period a large number of casualty companies have been formed, presumably for the purpose of earning profits. During the year 1928, underwriting profits of thirty-four large representative stock companies having writings of $450,000,000.00, amounted to but 1.9% of the earned premium. This means that profits from underwriting were small, amounting to 2.7% of capital and surplus. Investors in insurance stocks look largely to the "investment profits" of the companies for a return on their investment. Unless the greatest care is taken in underwriting, it may be necessary to meet underwriting losses from these profits.

The advent of new companies into the field will make for keen competition. The demand for business on the part of these carriers, and the struggle to retain business on the part of the older carriers, will soon be felt by all companies. Such conditions usually are marked by looser practices in underwriting, due in some measure to the employment of men less well trained in careful practices, and in some measure to the greed for volume. Much could be said about both of these causes of grief, and not a few examples from the back pages of history studied to advantage. The recent situation in the automobile liability field is evidence of the undercurrent of competition. In the main, carriers are bound to maintain acquisition cost at a minimum, and it remains to be seen what the actual results will be in the face of close competition. Then too, there have been most unusual advances in security values during the last few years, which has added materially to the wealth of the carriers. It is not to be expected that such increases can continue. In view of these conditions, what part should the trained casualty actuary and statistician take in the immediate future of the business?

His duties will be legion, particularly in the smaller companies. His first duty will be to see that the statistical and accounting procedure fits the company by which it is to be used; that it will produce accurate results, and that it will not have to be revamped in the course of a few years. This is not a simple task. I have found, by experience, that a system adapted to a large company is not adaptable to a small carrier. It will be essential to see that the accounting, statistical and claim records supplement one another, so that there shall be no overlapping and no waste motion; and, most important of all that the system shall not prove unduly expensive. The mechanical equipment so necessary today must be arranged so as to give maximum results.

It will be essential to see that risks are properly classified; this means proper preparation and checking of data, otherwise as much will be lost in revising the finished product as will be gained by economy in preparing and classifying the business.

The proper preparation of loss-ratio data, the constant scanning of this data, and its interpretation to detect any weakness in underwriting results, all are highly essential. A comparison of loss ratios, both on a calendar year basis and on a year of issue basis for lines maintained by years of issue, should regularly be made. Trends are often apparent in ratios derived from the latter figures which are not discernible in those based on the former. In making up this data it is a nice question whether to include unallocated claim expenses, and, if so, how to distribute them.

The preparation of agency experience is an exceedingly important duty. Many a good agent has been lost by careless calculation of the results of his agency, by inexperienced clerks, and I have found by long experience that the use and interpretation of agency experience should be intrusted only to an experienced person, who knows just how to analyze the results and draw proper conclusions.

Adequate claim reserves must be set up and maintained, records of claims and suits properly kept, and the flow of settled and canceled cases maintained at a high standard. Many incorrect conclusions have been drawn because of irregularities in claim department procedure. The smooth running of that department's procedure cannot be stressed too strongly as the effects are felt in almost every phase of the business. Individual risk experience, agency experience, classification experience and general financial results are all sensitive to the work of the claim department.

It is probably impracticable, but highly desirable, for carriers to calculate reserves for outstanding claims in a uniform manner. Some preliminary work along this line has been attempted, particularly in connection with workmen's compensation insurance, but no definite conclusions have been reached. One wonders, in studying the methods of calculating reserves used by different companies, that aggregate results produced on the basis of individual estimates are not wider of the mark.

There will also devolve on the actuary the duty of valuing, from time to time, long term workmen's compensation disability claims, as well as life pension accident and health claims, to say nothing of providing adequate reserves for incurred but not reported losses.

The responsibility for the correctness of the unearned premium reserve and the application of proper checks to keep it in control with the company's books rest upon the actuary.

The building up of data for and the preparation of the various tax reports together with the filing of the many state requirement blanks is not a small task. These requirements have increased considerably of late years and there is little if any uniformity in either their make-up or content.

The preparation if not the filing of experience rating data under both automobile and workmen's compensation policies usually devolves upon the statistical department, for that department maintains experience upon individual risks and if the company's system is properly developed it should be possible to obtain experience rating data from this source. Changes in experience rating methods should be discouraged as it tends to confuse those making up the data and only increases the errors in reporting.

A constant watch must be maintained upon the preparation of Schedule Z, which has become unnecessarily complicated by varying state requirements. The National Council uses one basis, Pennsylvania another, New York and Virginia still another. Keeping up with the various changes in these forms of reporting is a burden, the future possibilities of which merit serious consideration. Company executives often fail to realize just how far these complications have now gone.

The distribution of expenses and their proper allocation to acquisition, underwriting, claim and inspection, have continued to absorb the time and attention of the actuary. As loadings for rates are predicated upon the analysis disclosed by the Casualty

Experience Exhibit, it is realized that a mere pro-rating of expenses by premium volume is not sufficient. Care must be exercised to see that as much as possible of every item—printing, stationery, rent, traveling expenses, and all other expenses—is allocated, not only to the items mentioned, but to lines of business as well. The company that survives will be the one whose expenses are low but wisely distributed, and whose underwriting and investment policy is conservative.

With all these duties and responsibilities, the casualty actuary of today must have the broadest possible training. It is the purpose and aim of the Casualty Actuarial Society to stimulate and educate the younger men in the company organizations to fill an important place in the casualty insurance world. The widening horizon of the actuary, and the broadening field of endeavor in managerial activities other than those directly related to his profession should be an added inducement to become well grounded in all branches of casualty insurance. While sometimes the range of subject we cover seems formidable; yet not one can tell on what subject a question will arise which will require prompt decision. Conditions change so rapidly that the man in a specialized line cannot afford to neglect the opportunity of making himself familiar with all casualty lines. Many specialized companies, either through purchase or expansion, are now adding to the lines already written and entering the field of multiple-line insurance. I cannot too strongly urge those Associates of the Society who have reached a position in their profession which does not seem to require a knowledge of lines of insurance other than the one in which they are engaged, not to be content with knowledge of that field alone, but to study carefully all branches of casualty insurance in order that their general knowledge of the entire casualty business may be increased, as well as their knowledge of specialized lines and functions.

One way to accomplish this desired result is to proceed with the courses of study outlined by the Society in order to prepare for the Fellowship examination, and I trust that this will be the aim of all present Associates and of those that may become Associates hereafter.

CASUALTY INSURANCE ACCOUNTING AND THE ANNUAL STATEMENT BLANK

BY

THOMAS F. TARBELL

Methods of casualty insurance accounting are not and probably never will become standardized. Opinions differ as to the most efficient methods of compiling accounting data. The annual statement blank, however, is, with a few unimportant exceptions, uniform for all states and, accordingly, whatever accounting methods are adopted must be designed to permit the assembling of the results to conform with prescribed uniform annual statement requirements.

Insurance accounting is a highly specialized branch of accounting and because of this fact 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 purpose of this paper is to show briefly the application of general bookkeeping and accounting principles to casualty insurance with particular reference to the requirements of the annual statement blank as respects Income, Disbursements and Ledger Assets.

The principles of double entry bookkeeping debit and credit are necessarily the same for all kinds of business enterprises. A debit represents either expense (decrease of proprietorship), an increase in an asset or a decrease in a liability; a credit represents either income (increase of proprietorship), a decrease in an asset or an increase in a liability. It is fundamental, of course, that for each debit there is a corresponding offsetting credit and vice versa. These principles as applied to casualty insurance will be illustrated in connection with consideration of various annual statement items.

The books of account used by insurance companies are basically the same as those used by other business enterprises and consist of Journal, Cash Book and Ledger. In practice, however, various journals are generally used, each for a specific purpose, and the general ledger is used for controlling or summary accounts only and various subsidiary ledgers maintained for recording details. As examples, most companies maintain separate journals for:—

Premiums written
Premiums paid
Losses paid
Expenses paid

The premium and loss journals are in turn further subdivided to show transactions by line of insurance, and in case of premiums written according to kind of premium transaction (Gross written, Not taken, Return and Reinsurance); in case of losses paid according to kind of loss transaction (Gross paid, Salvage received, Reinsurance received).

The distinction between cash book and journal in insurance accounting as well as in the accounting of most large enterprises is not clearly drawn. As a rule, the cash book is in summary or condensed form, the supporting details being carried in various so-called journals. An illustration in connection with accounting for paid premiums is given at a later point.

A simple illustration of a general ledger controlling account supplemented by subsidiary ledger accounts is the collateral loan account. The general ledger would show only the transactions affecting the general account and a subsidiary ledger would carry the details of the accounts with the individual borrowers.

The most important divisions of the annual statement blank from the financial standpoint are as follows:

1. Income and Disbursements
2. Assets and Liabilities
3. Underwriting and Investment Exhibit

In addition, the statement contains various general interrogatories regarding the conduct of the business and numerous exhibits and supporting schedules, which have no effect upon the financial results but are designed chiefly to enable insurance departments to partially audit the statement results and provide information and publicity considered desirable from a supervisory standpoint.

Statements of most commercial enterprises are prepared upon the so-called "revenue" or "accrual" basis. The books of account show earned income and incurred expenses. Insurance companies' statements of income and disbursements are prepared upon the "cash" basis and the books of account show only cash income (or the equivalent thereof) and paid expenses, subject to a few minor exceptions hereinafter referred to. While the Underwriting and Investment Exhibit of the casualty annual statement blank assembles the year's results on a revenue basis, the difference mentioned above makes it rather difficult for one whose knowledge of accounting and statements has been confined to general commercial accounting or the study of standard accounting textbooks to clearly comprehend the insurance blank.

The principle underlying the casualty annual statement blank is, in fact, rather simple. Expressed as a formula it is as follows:

To:	Ledger assets at the beginning of the year
Add or Deduct:	Increase or decrease in capital during the year
Add:	Cash received during the year
Add:	Profit and loss adjustments in ledger assets—Increases
Deduct:	Cash disbursed during the year
Deduct:	Profit and loss adjustments in ledger assets—Decreases
Balance =	Ledger assets at the end of the year

The term cash as used in the above formula means cash or the equivalent thereof and in many instances "net" cash as will be brought out more fully upon consideration of certain specific income and disbursement items.

The annual statement blank to which all subsequent references are made is that prescribed by the National Convention of Insurance Commissioners known as the "Convention Edition" and supplied to the companies for their returns as of December 31, 1928. It should be pointed out that changes in the blank are made yearly and, accordingly, item number references and descriptions of items may change in future editions. The various sections to be considered will be taken up in the order in which they appear in the statement.

Section I—Capital Stock (Page 2)

(See Exhibit 1, page 143)

Item 1—"Amount of Capital Paid Up."

This item is merely a memorandum statement of the amount of capital paid up at the end (not the beginning) of the year of statement.

EXHIBIT 1

2 ANNUAL STATEMENT FOR THE YEAR 1928 OF THE .... (Write or stamp name of Company) Form 3

I—CAPITAL STOCK

1. Amount of capital paid up . . . . $..................
2. Amount of ledger assets (as per balance), December 31 of previous year . . . . $..................
3. ....crease of paid up capital during the year . . . .

Extended at . . . . $..................

II—INCOME

	(1)	(2)	(3)	(4)	(5)	(6)
		DEDUCT				
	*Gross premiums, including policy fees, written and renewed during the year per Col. 2, VI page 7	Premiums on policies not taken	Return premiums on policies cancelled	Reinsurance	Total deductions	Net premiums
4. Accident						
5. Health						
6. Non-cancellable accident and health						
7. Auto liability (a)						
8. Liability other than auto (a)						
9. Workmen's compensation (b)						
10. Fidelity						
11. Surety						
12. Plate glass						
13. Burglary and theft						
14. Steam boiler						
15. Machinery						
16. Auto property damage						
17. Auto collision						
18. Property damage and collision other than auto						
19. (c)						
20. Totals						$..........

21. Inspections . . . .
22. Gross interest on mortgage loans, per Schedule B, less $..................accrued interest on mortgages acquired during the year . . . . $..................
23. Gross interest on collateral loans, per Schedule C . . . .
24. Gross interest on bonds and dividends on stocks, less $..................accrued interest on bonds acquired during the year, per Schedule D . . . .
25. Gross interest on deposits in trust companies and banks, per Schedule N . . . .
26. Gross interest from all other sources (give items and amounts):
27. ....
28. ....
29. Gross rents from company's property, including $..................for company's occupancy of its own building, less $..................interest on incumbrances, per Schedule A . . . .
30. Total Interest and Rents . . . .
31. From other sources (give items and amounts):
32. .... $..................
33. ....
34. ....
35. Remittances from Home Office to United States Branch (gross) . . . .
36. Borrowed money (gross)† . . . .
37. From agents' balances previously charged off . . . .
38. Gross profit on sale or maturity of ledger assets, viz:
    (a) Real estate, per Schedule A . . . . $..................
    (b) Bonds, per Schedule D . . . .
    (c) Stocks, per Schedule D . . . .
39. Gross increase by adjustment in book value of ledger assets, viz:
    (a) Real estate, per Schedule A . . . . $..................
    (b) Bonds, per Schedule D . . . .
    (c) Stocks, per Schedule D . . . .
40. **Total Income** . . . . $..........
41. Amount carried forward $..........

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

†Company is at liberty to briefly state transaction, so that explanation can be carried as footnote in department report.

(a) Including net premiums on policies issued in previous years. Indicate refunds by minus sign.

1927, $..........; 1926, $..........; 1925, $..........

1924, $..........; 1923, $..........; prior to 1923, $..........

(b) Including net premiums on policies issued in previous years. Indicate refunds by minus sign.

1927, $..........; 1926, $..........; 1925, $..........

1924, $..........; 1923, $..........; prior to 1923, $..........

(c) Enter "Credit," "Live Stock," or "Sprinkler."

Item 2—"Amount of Ledger Assets (as per balance) December 31 of previous year."

This item, which must agree with Item 31, page 4, of the previous year's statement, is the starting point of the basic formula as set out on page 144 hereof.

Item 3—"—crease of Paid-Up Capital during the Year."

This item is not an income item as it is merely an addition to or decrease of capital account. It does, however, represent cash received during the year where an increase is made and, accordingly, enters into the accounting formula. Where capital is increased the bookkeeping entries are:

Debit: Cash
Credit: Capital stock

Section II—Income (Page 2)
(See Exhibit 1, Page 143)

Items 4-20—Premium Income.

The annual statement blank requires that premiums be reported on a "written" instead of a "paid" basis. Hence, written premiums for statement purposes are considered as the equivalent of cash. Premiums are reported by line of insurance and according to kind of premium transaction. The "net" credit balances of the various premium accounts are shown on the income page.

Since written premiums are credited but the cash not necessarily received until sometime subsequently, it is necessary to set up ledger asset accounts in which to carry the premiums receivable until they are collected. These accounts are known as "Premiums in course of Collection" (Items 9-25, Page 4).

The bookkeeping entries involved in the various kinds of premium transactions for each line of insurance are as follows:

(1) Gross premiums, etc.
Debit: Premiums in course of collection
Credit: Gross premiums written

(2) Premiums on policies not taken
Debit: Not taken premiums
Credit: Premiums in course of collection

(3) Return premiums on policies canceled
Debit: Cancelation (or return) premiums
Credit: Premiums in course of collection

(4) Reinsurance

Gross written

Debit: Reinsurance premiums written
Credit: Reinsurance premiums payable

Not taken and canceled (or return)

Debit: Reinsurance premiums payable
Credit: Reinsurance premiums written

Note that it is not necessary to keep reinsurance premium accounts subdivided according to gross, not taken and canceled.

Premiums in course of collection and reinsurance premiums payable receive further consideration in connection with SECTION IV—LEDGER ASSETS (Page 4 of statement).

Item 21—"Inspections."

This item represents income received by a company for inspecting mechanical equipment, usually steam boilers, where a regular inspection and indemnity contract is not carried in the company.

The bookkeeping entries are:

Debit: Cash
Credit: Inspections

Items 22-28—Interest Received on Various Forms of Ledger Assets.

These items represent net cash received—gross cash less amount paid for accrued interest, if any. The bookkeeping entries can be best illustrated by an example: Assume a 5% bond for $1000 with interest payable semi-annually acquired at par value plus three months accrued interest. The bookkeeping entries at purchase for the interest part of the transaction would be:

Debit: Bond interest (or bond interest accrued) $12.50
Credit: Cash $12.50

When the next coupon due was collected the entries would be:

Debit: Cash $25
Credit: Bond interest $25

The net interest received would be $12.50.

Item 29—"Gross Rents from Company's Property, including $——— for company's occupancy, less $——— interest on incumbrances, per Schedule A."

This item may involve three accounts—Rents received, Rents paid and Interest on mortgages payable.

The bookkeeping entries for space leased or rented to tenants would be:

Debit: Cash
Credit: Rents received

The bookkeeping entries for rent charged the company by itself for its own occupancy would be:

Debit: Rents paid
Credit: Rents received

The bookkeeping entries in connection with interest paid on incumbrances (mortgages) would be:

Debit: Interest on mortgages payable
Credit: Cash

Items 31-34—"From other Sources (give items and amounts)."

These lines are intended to provide miscellaneous and unusual income or cash received transactions and profit and loss adjustments not otherwise provided for. As an example, surplus paid in by stockholders would be reported in one of these lines. Such surplus is not income but merely an addition to surplus account. The bookkeeping entries would be:

Debit: Cash
Credit: Profit and loss (surplus paid in)

In rare cases companies, in order to provide additional surplus, reduce the par value of their stock and transfer the difference between the amounts at the old and new par values to surplus. In such cases the decrease in capital would be reported in Item 3 and the corresponding surplus gain in one of the Items 32-34 under some such description as "Surplus transferred from capital account." The bookkeeping entries would be as follows:

Debit: Capital
Credit: Profit and loss (capital transferred to surplus)

Item 35—"Remittances from Home Office to United States Branch (gross)."

This item applies only to the United States Branches of Foreign Companies. It represents funds supplied by the Home Office for capital and surplus purposes and is not income. The bookkeeping entries are:

Debit: Cash
Credit: Remittances from home office

Item 36—"Borrowed Money (gross)."

This item is self-explanatory. The bookkeeping entries are:

Debit: Cash
Credit: Borrowed money

It is noted that the foregoing item is not income. An asset (cash) is created but a corresponding liability (borrowed money payable) is also created co-incident therewith. As a matter of fact, if the borrowed money were repaid in full during the calendar year of statement it could be—and from a pure accounting standpoint should be—entirely omitted from the statement. It is obvious that the subtracting (or dropping) of equal amounts from both sides of the basic equation (or from both "Income" and "Disbursements") will not affect the balance of the equation (or the statement balance). However, the statement requires that borrowed money received and borrowed money repaid (see Item 53, EXHIBIT 2—DISBURSEMENTS, Page 3 of statement) be reported gross.

Item 37—"From Agents' Balances Previously Charged Off."

This item arises when a balance due from an agent and charged off as uncollectible is subsequently recovered. The bookkeeping entries are as follows:

Debit: Cash
Credit: Profit and loss (Agents' balances)

Item 38—"Gross Profit on Sale or Maturity of Ledger Assets"—Real Estate, Bonds and Stocks.

The profit (or loss) on sale of ledger assets is the difference between the book value (not the actual cost) at date of sale and the sale price. The bookkeeping entries for the profit portion are:

Debit: Cash
Credit: Profit and loss—profit on sale of (real estate, bonds or stocks)

There are two methods of accounting for profit and loss items in general use. One method (that followed in this paper) is to charge or credit such items as profit or loss on sale direct to a single controlling Profit and Loss ledger account and maintain subsidiary accounts for the details required by the annual statement. The second method is to carry separate profit and loss ledger accounts for each such annual statement item. Where the second method is followed the account credited in the above example would be "Profit on sale of (real estate, bonds or stocks)."

Item 39—"Gross Increase by Adjustment in Book Value of Ledger Assets"—Real Estate, Bonds and Stocks.

This item does not represent cash income or profit but is in the nature of accrued income or profit. Some companies follow the practice of maintaining the book values of real estate, bonds and stocks at approximately the market values. Profit and loss entries are made at the end of the year to bring the book values up to the approximate market values. The bookkeeping entries are:

Debit: Real estate, bonds or stocks (book value)
Credit: Profit and loss—Increase by adjustment in book value of (real estate, bonds or stocks)

In case of bonds a further use is made of this item by companies which value their bond holdings on the amortization basis. If a bond is acquired at a discount, the effective rate of interest will be in excess of the nominal rate. Assume that the nominal (coupon) rate is 4%, the purchase price 90 and the term to maturity 14 years. The effective rate of interest, as determined by reference to any standard table of bond values is 5%. If the bond were carried upon the books at $900 until maturity, a false profit on maturity of $100 would be shown and the interest income during the period would be too small, since it is reasonable to assume that the effective rate of 5% represents a fair interest return on funds invested at the time of purchase of the bond. The company would, however, receive only the nominal interest of 4% during the term of the bond, the additional interest being deferred and accumulated at the effective rate until maturity. Such deferred interest would be taken credit for by adding the yearly accrual to the book value of the bond. The bookkeeping entries would be:

Debit: Bonds (book value)
Credit: Profit and loss—accrual of bond discount

The foregoing is an exception to the general rule that the statement is based upon cash income or receipts.

It will be shown upon consideration of SECTION IV—ASSETS (Page 4 of statement) that increases (or decreases) by adjustment are unnecessary so far as the effects of changes in security values upon surplus and total admitted assets are concerned. They do, however, affect the amount of ledger assets.

Item 40—"Total Income."

This is the sum of the extended amounts of Items 20, 21, 30 and 34-39.

Item 41—"Amount Carried Forward."

This is the sum of the ledger assets at beginning of year, plus or minus the increase or decrease in capital during the year, and total income (Item 40).

Section III—Disbursements (Page 3)

(See Exhibit 2, Page 151)

Items 1-17—Losses Paid.

Accounting procedure in connection with losses paid is comparatively simple so far as meeting annual statement requirements are concerned. The bookkeeping entries for each of the various kinds of loss transactions for each line of business are as follows:

(1) Gross amount paid for losses
  Debit: Losses
  Credit: Cash

(2) Gross salvage
  Debit: Cash
  Credit: Salvage recovered

(3) Reinsurance
  Debit: Cash
  Credit: Reinsurance recovered

In cases where salvage has been recovered on a paid loss under which there was reinsurance the original company would refund to the reinsuring company its proportion of the salvage recovery. The bookkeeping entries on payment to the reinsuring company would be:

  Debit: Reinsurance recovered
  Credit: Cash

At first glance it would appear that this method of accounting is incorrect and that the bookkeeping entries should be:

  Debit: Salvage
  Credit: Cash

It will be noted that the heading "Gross" precludes any debit entries to the salvage account and an example will show that the prescribed method is correct.

Assume that a company pays a gross loss of $1000 and that the

EXHIBIT 2

Form 3 ANNUAL STATEMENT FOR THE YEAR 1928 OF THE .... (Write or stamp name of Company) 3

Amount brought forward, $........

III—DISBURSEMENTS

	(1) Gross amount paid for losses	(2) DEDUCT: Gross Salvage (Sched. H)	(3) DEDUCT: Reinsurance	(4) DEDUCT: Total deduction	(5) Net amount paid policyholders for losses	
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						$........

18. Investigation and adjustment of claims, viz:
19. Accident $........; Health $........; Non-cancellable accident and health $........; Auto liability $........;
20. Liability other than auto $........; Workmen's compensation $........; Fidelity $........; Surety $........;
21. Plate glass $........; Burglary and theft $........; Steam boiler $........; Machinery $........;
22. Auto property damage $........; Auto collision $........; Property damage and collision other than auto $........; (a) ....$........; ....
23. Policy fees retained by agents . . . .
24. Commissions or brokerage, less amount received on return premiums and reinsurance for the following classes:
25. Accident $........; Health $........; Non-cancellable accident and health $........; Auto liability $........;
26. Liability other than auto $........; Workmen's compensation, $........; Fidelity $........; Surety $........;
27. Plate glass $........; Burglary and theft $........; Steam boiler $........; Machinery $........;
28. Auto property damage $........; Auto collision $........; Property damage and collision other than auto $........; (a) ....$........; ....
29. Salaries, fees, other compensation and traveling expenses of officers, directors, trustees and home office employees . . . .
30. Salaries, traveling and all other expenses of branch office employees and agents not paid by commissions . . . .
31. Medical examiners' fees and salaries . . . .
32. Inspections, including accident prevention . . . .
33. Rents, including $........for company's occupancy of its own buildings . . . .
34. General office maintenance and expense . . . .
35. Repairs and expenses (other than taxes) on real estate . . . .
36. Taxes on real estate . . . .
37. State taxes on premiums . . . . $........
38. Insurance department licenses and fees . . . .
39. Federal taxes . . . .
40. All other licenses, fees and taxes (give items and amounts):
41. ....
42. ....
43. ....
44. Legal expenses $........; advertising $........; printing and stationery $........ . . . .
45. Postage, telegraph, telephone, exchange and express $........; insurance $........ . . . .
46. Furniture and fixtures $........; books, newspapers and periodicals $........ . . . .
47. Bureau and Association dues and assessments . . . .
48. Stockholders for dividends (amount declared during the year, cash $........; stock $........) . . . .
48A. Policyholders for dividends, less $........ dividends received from reinsuring companies . . . .
49. Other disbursements (give items and amounts):
50. .... $........
51. ....
52. Remittances to Home Office from United States Branch (gross) . . . .
53. Borrowed money repaid (gross) . . . .
54. Interest on borrowed money . . . .
55. Agents' balances charged off . . . .
56. Gross loss on sale or maturity of ledger assets, viz:
    (a) Real estate, per Schedule A . . . . $........
    (b) Bonds, per Schedule D . . . .
    (c) Stocks, per Schedule D . . . .
57. Gross decrease, by adjustment, in book value of ledger assets, viz:
    (a) Real estate, per Schedule A . . . . $........
    (b) Bonds, per Schedule D . . . .
    (c) Stocks, per Schedule D . . . .
58. Total Disbursements . . . . $........
59. BALANCE . . . . $........

(a) Enter "Credit," "Live Stock," or "Sprinkler."

risk is one-half reinsured. The statement as respects this item would appear as follows:

Gross Amount Paid	Salvage	Reinsurance	Total Deduction	Net Amount Paid
$1,000.00	....	$500.00	$500.00	$500.00

If $500 salvage were subsequently received the statement under the prescribed method would show:

(a) Gross Amount Paid	Salvage	Reinsurance	Total Deduction	Net Amount Paid
$1,000.00	$500.00	$250.00	$750.00	$250.00

and under the incorrect method:

(b) Gross Amount Paid	Salvage	Reinsurance	Total Deduction	Net Amount Paid
$1,000.00	$250.00	$500.00	$750.00	$250.00

Since reinsurance applies to the net loss sustained by a company, method (a) is obviously correct as it shows reinsurance equal to 50% of the net loss — $250.00 ÷ ($1000.00 — $500) and method (b) incorrect since it shows reinsurance equal to 66 2/3% of the net loss—$500.00 ÷ ($1000.00 — $250.00).

Reinsurance is usually collected sometime after the gross loss is paid. This results in reinsurance recoverable and most companies prefer to credit this to loss account immediately. This procedure is similar in theory to the crediting of written premiums. To accomplish this result a ledger asset account "Reinsurance recoverable on paid losses" is set up and the bookkeeping entries become:

Debit: Reinsurance recoverable (on paid losses)
Credit: Reinsurance recovered

Items 18-47 and 49-51—Expenses.

These items cover various underwriting (claim, acquisition, administration, inspection, tax and bureau) and investment (real estate and other) expenses. No special accounting procedure is involved except in connection with claim and inspection expense and the usual bookkeeping entries are:

Debit: Expense (by item)
Credit: Cash

Claim expense is divided into two parts—allocated and unallocated. Allocated expense is that chargeable to specific claims, such as attorneys' and court fees, cost of medical examinations (in public liability claims) and cost of appraisals (in case of property damage losses). Unallocated claim expense consists of the general overhead cost of maintaining claim service, both in the field and at the Home Office, comprising such items as salaries, traveling expense, rent, heat, light, printing and stationery, furniture and fixtures, etc. Separate ledger accounts are maintained for assigned loss expense by line the same as in the case of losses. Separate ledger accounts are also usually maintained for claim salaries and claim traveling expense, but not by line of insurance. The problem of determining what proportion of field and Home Office rent, heat, light, printing and stationery, furniture and fixtures, should be charged to claim expense and the further distribution of such proportions plus claim salaries and claim traveling expenses to the various lines of insurance involves the application of advanced cost accounting principles and the treatment of this phase of accounting, even briefly, is beyond the scope of this paper.

Problems similar to those involved in determining unallocated claim expense are encountered in determining inspection expense, since this expense is also made up of salaries, traveling expense, rent, heat, light, printing and stationery, furniture and fixtures, etc.

It is obvious from the foregoing that the disbursements as shown on Page 3 of the statement will not check with the Trial Balance as respects many items—salaries, traveling expense, rents, printing and stationery, furniture and fixtures, etc.

Item 48—"Stockholders for Dividends (Amount declared during the year, cash $———; Stock $———)."

This item requires no special comment. The provision for showing in parenthesis dividends declared during the year is to provide a check on the liability for unpaid dividends, Page 5 of statement. The bookkeeping entries involved in the dividend account are as follows:

Debit: Dividends paid
Credit: Cash

Item 48A—"Policyholders for Dividends, less $——— Dividends received from Reinsuring Companies."

This item is peculiar to mutual companies or stock companies writing participating contracts. It involves no unusual accounting principles. Note, however, that dividends paid are net—gross paid less dividends received from reinsuring companies. Separate accounts are maintained—one for gross dividends and the other for reinsurance dividends. The bookkeeping entries are as follows:

Gross dividends paid

Debit: Dividends to policyholders
Credit: Cash

Reinsurance dividends received

Debit: Cash
Credit: Reinsurance dividends

Item 52—"Remittances to Home Office from United States Branch (gross.)"

This item is the opposite of Item 35, Page 2, and represents surplus funds returned to Home Office. The bookkeeping entries are:

Debit: Remittances to Home Office
Credit: Cash

Item 53—"Borrowed Money Repaid (gross)."

This item is the opposite of Item 36, Page 2. The bookkeeping entries are:

Debit: Borrowed money
Credit: Cash

Item 54—"Interest on Borrowed Money."

This item is self-explanatory. The bookkeeping entries are, of course:

Debit: Interest on borrowed money
Credit: Cash

Item 55—"Agents' Balances Charged Off."

This is a profit and loss item representing the charge off of a balance considered as uncollectible. The bookkeeping entries are as follows:

Debit: Profit and loss (Agents' balances)
Credit: Agents' balances

Item 56—"Gross Loss on Sale or Maturity of Ledger Assets"—Real Estate, Bonds and Stocks.

This is the opposite of Item 38, Page 2. The bookkeeping entries, so far as the loss on sale is concerned, are:

Debit: Profit and loss—loss on sale of (real estate, bonds or stocks)
Credit: Real estate, bonds or stocks (book value)

The bookkeeping entries for both Items 38, Page 2, and 56, Page 3, are further illustrated in the consideration of SECTION IV—LEDGER ASSETS (Page 4 of statement), Item 4—"Book Value of Bonds."

Item 57—"Gross Decrease by Adjustment in Book Value of Ledger Assets"—Real Estate, Bonds and Stocks.

This item is the reverse of Item 39, Page 2. For ordinary adjustments to bring the book value down to the market value the bookkeeping entries are:

Debit: Profit and loss—increase by adjustment in book value of (real estate, bonds or stocks)
Credit: Real estate, bonds or stocks (book value)

In case of companies valuing their bonds on the amortization basis the process is the reverse of that illustrated in connection with Item 39, Page 2. If a bond is acquired at a premium the effective rate of interest will be less than the nominal rate. Assume that the nominal (coupon) rate is 6%, the purchase price 115 and the term to maturity 28 years. The effective rate of interest would be 5%. Under these circumstances the excess of the nominal interest over the effective interest would be used to amortize the premium over the term of the bond so that at maturity the bond would stand on the books at its par value. The bookkeeping entries would be:

Debit: Profit and loss—amortization of bond premiums
Credit: Bonds (book value)

Item 58—"Total Disbursements."

This item is the sum of the extended amounts of Items 17, 22, 23, 28-36, 43-48A, 51-55, 56 and 57.

Item 59—"Balance."

This item is the difference between the item "Amount brought forward" at the top of the page and Item 58. It balances with Item 31, Page 4 of statement (see Exhibit 3, Page 157).

SECTION IV—ASSETS (Page 4)

(See Exhibit 3, Page 157)

This section is divided into three subsections:

(1) Ledger Assets
(2) Non-Ledger Assets
(3) Assets Not Admitted

(1) LEDGER ASSETS

Items 1-4—Investments—Real Estate, Mortgage Loans, Collateral Loans, Bonds and Stocks.

These items call for the book values of the various forms of investments. It should be noted that Item 1 provides for the deduction of incumbrances from the book value of real estate and the showing of only the net value as a ledger asset. This is not in accordance with the usual accounting practice of showing the gross value as an asset and mortgage incumbrances as a liability.

When an investment is made the bookkeeping entries are:

Debit: Real estate, mortgage loans, etc.
Credit: Cash

When an investment matures or is disposed of the bookkeeping entries are:

Debit: Cash
Credit: Real estate, mortgage loans, etc.

Where there is a profit or loss on sale or maturity at least three and in some instances four accounts are affected. Examples using the sale of a bond at a profit and a loss will illustrate. Assume that a bond carried at a book value of $980 is sold for par ($1000) and accrued interest of $25. The bookkeeping entries would be as follows:

	Debit	Credit
Cash	$1,025.00	....
Bonds (book value)	....	$980.00
Profit and loss—profit on sale of bonds	....	20.00
Bond interest	....	25.00
	$1,025.00	$1,025.00

If the book value and sale amounts were reversed, i.e., book value $1000 and sale price $980 plus accrued interest of $25, the bookkeeping entries would be as follows:

	Debit	Credit
Cash	$1,005.00	....
Bonds (book value)	....	$1,000.00
Profit and loss—loss on sale of bonds	20.00	....
Bond interest	....	25.00
	$1,025.00	$1,025.00

EXHIBIT 3

4 ANNUAL STATEMENT FOR THE YEAR 1928 OF THE .... (Write or stamp name of Company) Form 3

IV—LEDGER ASSETS

1. Book value of real estate (less $..........incumbrances), per Schedule A . . . . . . $
2. Mortgage loans on real estate per Schedule B, first liens $..........
   other than first ....
3. Loans secured by pledge of bonds, stocks or other collateral, per Schedule C . . . .
4. Book value of bonds, $..........; and
   stocks, $..........; per Schedule D . . . .
5. Cash in company's office . . . . $
6. Deposits in trust companies and banks not on interest, per Schedule N .
7. Deposits in trust companies and banks on interest, per Schedule N . .
8. Gross premiums in course of collection, viz:

		(1) On policies or renewals effective on or after October 1 of Current Year	(2) On policies or renewals effective prior to October 1 of Current Year
9.	Accident	$	$
10.	Health		
11.	Non-cancellable accident and health		
12.	Auto liability		
13.	Liability other than auto		
14.	Workmen's compensation		
15.	Fidelity		
16.	Surety		
17.	Plate glass		
18.	Burglary and theft		
19.	Steam boiler		
20.	Machinery		
21.	Auto property damage		
22.	Auto collision		
23.	Property damage and collision other than auto		
24.	(a)..........		
25.	TOTALS	$	$

26. Bills receivable . . . .
27. Other ledger assets, viz:
28. .... $
29. ....
30. ....
31. Ledger Assets, as per Balance on page 3 . $

NON-LEDGER ASSETS

32. Interest due, $..........and accrued, $..........on mortgages, per Schedule B . $
33. Interest due, $..........and accrued, $..........on collateral loans, per Schedule C, Part 1 .
34. Interest due, $..........and accrued, $..........on bonds, not in default, per Schedule D, Part 1
35. Interest due, $..........and accrued, $..........on other assets (give items and amounts): .
36. ....
37. ....
38. Rents due, $..........and accrued, $..........on company's property or lease . .
39. Market value of real estate over book value, per Schedule A . . . .
40. Market value (not including interest in Item 34) of bonds and stocks over book value, per Schedule D . . . . . .
41. Other non-ledger assets, viz:
42. .... $
43. ....
44. Gross Assets . . . . $

DEDUCT ASSETS NOT ADMITTED

45. Company's stock owned, $..........; loans on, $.......... $
46. Supplies, printed matter and stationery . . . .
47. Furniture, fixtures and safes . . . .
48. Gross premiums in course of collection effective prior to October 1 of current year . . . .
49. Bills receivable . . . .
50. Loans on personal security, endorsed or not . . . .
51. ....
52. Book value of real estate over market value, per Schedule A . . . . . . $
53. Book value of bonds and stocks over market value, per Schedule D . . . .
54. Book value of other ledger assets over market value, viz:
55. ....
56. ....
57. ....
58. Total Admitted Assets . . . . $

(a) Enter "Credit," "Live Stock," or "Sprinkler."

In order to conveniently record the various bookkeeping entries arising from either of the above transactions, a voucher would be prepared showing the four debits and credits. The cash would be posted in the cash book and the other entries in a journal designed to provide for entries such as the foregoing. Many companies maintain what is known as a cash-journal, a combination of cash book and journal, and in such cases all four entries would be posted in this book.

Items 6 and 7—Deposits in Trust Companies and Banks.

Heretofore in all examples of bookkeeping entries involving actual receipts and disbursements, it has been assumed that such receipts and disbursements have been in the form of cash and for simplicity of illustration "Cash" has been used as the account involved. In practice, however, only a small part of the actual business transactions of an insurance company involve actual cash but are represented by check receipts and disbursements. Accordingly, companies maintain, in addition to a pure cash account, separate ledger accounts with various banks. Checks received are usually charged to cash through the medium of the cash book and subsequently credited to cash and charged to the bank of deposit. Debit may be, and frequently is, made direct to the bank without the intermediate step of passing through the cash book. Under the latter conditions the bookkeeping debit would be to "Bank" instead of to "Cash." As an example the bookkeeping entries in connection with rents received (see page 147) would be:

Debit: Bank (by name)
Credit: Rents received

Disbursements, except for petty cash items, are almost invariably made by check and charged direct to the bank upon which they are drawn. Using gross losses paid, for example, the bookkeeping entries in actual practice (see page 150) would be:

Debit: Losses
Credit: Bank (by name)

Items 8-25—"Gross Premiums in Course of Collection"—(by line of insurance).

The function of these items has been explained in connection with the consideration of Items 4-20, Page 2 of statement. The significance of the word "Gross" is usually interpreted as meaning "without deduction of commissions." These accounts consist of the net amount of unpaid direct premiums (gross, less not taken and return) minus the net amount of reinsurance premiums payable.

When premiums are collected two asset and one disbursement accounts are affected, since premiums are remitted "net" (less commissions) by agents. Cash is debited, premiums in course of collection are credited and commissions are debited. If premiums to the gross amount of $1000, with a commission rate of 25% were remitted, the bookkeeping entries would be:

	Debit	Credit
Cash (or bank)	$750.00	....
Premiums in course of collection	....	$1,000.00
Commissions paid	250.00	....
	$1,000.00	$1,000.00

On payment of reinsurance premiums by the company the bookkeeping entries, assuming gross reinsurance premiums of $1000 and a commission rate of 35%, would be:

	Debit	Credit
Cash (or bank)	....	$650.00
Reinsurance premiums payable	$1,000.00	....
Commissions paid	....	350.00
	$1,000.00	$1,000.00

In actual practice the bookkeeping is handled somewhat differently from the simple illustrations above. In case of direct business a summary of the premium, commission and any other charges or credits and the net cash remitted, usually referred to as a "Paid Premium Report" or "Account Current," would accompany the remittance. Using this as a voucher the net cash would be debited on the cash book or to the bank and the remaining items posted to the paid premium journal. At the end of the month the total debits and credits would be posted therefrom to the appropriate ledger accounts—premiums in course of collection, commissions and expense (by account), if any.

Item 26—"Bills Receivable."

This item is of slight consequence in the accounts of insurance companies and involves no special accounting consideration. If a note were accepted from an agent for a balance due for premiums, the bookkeeping entries would be the same except that bills receivable would be debited instead of cash or bank. When the note was paid, the bookkeeping entries would be:

Debit: Cash (or bank)
Credit: Bills receivable

Items 27-30—"Other Ledger Assets, viz.:"

The more important items usually found in these lines are "Reinsurance recoverable on paid losses," referred to in connection with the consideration of paid losses, Items 1-17, Page 3 of statement, and "Agents' sundry balances."

When the reinsurance recoverable mentioned on page 152 is actually paid by the reinsuring company, the bookkeeping entries are:

Debit: Cash (or bank)
Credit: Reinsurance recoverable on paid losses

Agents' sundry balances generally arise from errors made in agents' accounts which are discovered upon audit at the Home Office. If, for example, an agent made an error of $10 in computing a commission, his account would be short or over by such amount and this would require a debit or credit to "Agents' sundry balances."

For example, assuming premiums of $1000, commissions of $250 (incorrectly computed by the agent at $260), the complete bookkeeping entries would be:

	Debit	Credit
Cash (or bank)	$740.00	....
Agents' sundry balances	10.00	....
Premiums in course of collection	....	$1,000.00
Commissions paid	250.00	....
	$1,000.00	$1,000.00

These sundry balances are cleared in subsequent reports.

Item 31—"Ledger Assets, as per Balance on Page 3."

This item is the sum of Items 1, 2, 3, 4, 7, 25, 26 and 30, and, as indicated and also previously pointed out, must agree with Item 59, Page 3.

With the exception of capital and a few ledger liability items of rather infrequent occurrence and which involve somewhat advanced and unusual accounting theory and practice, all items which are derived from the Trial Balance of a company have now been considered and the main purpose of the paper accomplished. Accordingly, consideration of the balance of the financial statement will be made as brief as possible.

(2) NON-LEDGER ASSETS

Items 32-37—Interest Due and Accrued on Various Ledger Assets.

These items are necessary to compute the actual interest earned during the year. Their determination is mainly a matter of the arithmetical computation and summarization of detail items.

Item 38—Rents Due and Accrued.

This item is similar to Items 32-37 and requires no particular explanation.

Item 39—"Market Value of Real Estate over Book Value, per Schedule A".

Insurance companies are required to compile their statements upon market values of assets. If the market value exceeds the book value, the excess is treated as a non-ledger asset.

Item 40—"Market Value (not including interest in Item 34) of Bonds and Stocks over Book Value, per Schedule D".

This item is similar to Item 39 and requires no particular comment. It should be noted that the market values of stocks include accrued dividends and, accordingly, no credit for accrued dividends should be taken in Items 35-37.

Items 41-43—"Other Non-ledger Assets, Viz:"

These items are to provide for unusual or infrequent non-ledger assets. In the case of a company which does not credit losses for reinsurance recoverable at the time of paying the gross loss (see comments on reinsurance losses, page 152) but only upon collection of the reinsurance the "Reinsurance recoverable on paid losses" would be carried as a non-ledger asset.

Item 44—"Gross Assets".

This item which is self-explanatory is the sum of Items 31, 38-40 and 43.

(3) ASSETS NOT ADMITTED

From the "Gross Assets" certain deductions are made to arrive at the "Admitted Assets". These deductions consist of (1) assets of doubtful value in fact or arbitrarily so classified by law or rulings of insurance departments and (2) excesses of book values of investments over market values.

Item 45—"Company's Stock Owned, $———, Loans on $———."

Such items are of rare occurrence. Their treatment as non-admitted assets is, of course, logical.

Items 46 and 47—"Supplies, Printed Matter and Stationery" and "Furniture, Fixtures and Safes".

The treatment of the above items as non-admitted assets is open to question. Supplies, printed matter and stationery have a certain asset value, especially to a going concern, and furniture and fixtures unquestionably have an asset value, both on the basis of a going concern and because of their resale value. The fact that no asset value is permitted for these items is probably due to difficulties incident to a proper appraisal of their worth.

In view of the fact that no asset value is permitted for the above items, most companies carry no asset accounts for the same but treat all purchases as expense.

Item 48—"Gross Premiums in course of collection effective prior to October 1 of Current Year".

This item is similar to the item frequently found in the statements of manufacturing and merchandising corporations under the caption "Reserve for bad debts". It should be noted, however, that insurance companies are not permitted to exercise any judgment in determining the amount of the item but are required to consider all premiums outstanding more than three months as uncollectible or of no value. Experience shows that as a matter of fact only a small proportion of such items are eventually charged off as uncollectible.

Items 49 and 50—"Bills Receivable" and "Loans on Personal Security, endorsed or not".

The treatment of these items in their entirety as non-admitted assets is open to debate. Notes may be taken from agents as a last resort to effect collection of premium balances. On the other hand, notes or interest bearing warrants sometimes issued by municipalities in payment of premiums and assumed by a company from its agents are usually perfectly good assets. Loans on personal security are of rare occurrence in the statements of insurance companies and their treatment of non-admitted assets works no great hardship. Banks loan considerable amounts on personal security and such loans, if not in default, are considered as good assets. However, it is a part of a bank's business to make loans to individuals whereas this function is not necessary to the operation of an insurance company.

Items 52 and 53—Book Value of Ledger Assets over Market Value —Real Estate, Bonds and Stocks.

These items are the reverse of Items 39 and 40. If the book value exceeds the market value the excess is treated as a non-admitted asset.

In computing the excess of market values of the various ledger assets over the corresponding book values the excesses are "net" and not "gross". If a company owned five pieces of real estate, on three of which the market value exceeded the book value and on the other two the book value exceeded the market value, the net excess would be entered in either Item 39 or Item 52. In case of bonds and stocks the net excess would be determined for both bonds and stocks combined and the net amount entered in either Item 40 or Item 53.

As pointed out on page 149, increases (or decreases) by adjustment of ledger assets are unnecessary so far as the effects of changes in security values upon surplus are concerned, since such changes in surplus are automatically reflected in Items 40 or 53, Page 4. A simple example will illustrate. Assume that a bond carried upon the books at $990 has a market value of $1,000. If an increase by adjustment is made, the effect upon the statement is as follows:

Increase by adjustment.................	$10.00	(Increase in surplus)
Increase in ledger assets.................	10.00	
Market value of bonds over book value....	0	
Increase in gross assets..................	10.00	
Increase in admitted assets..............	10.00	

If the increase by adjustment is not made, the effect upon the statement is as follows:

Increase by adjustment.................	0	
Increase in ledger assets.................	0	
Market value of bonds over book value....	$10.00	(Increase in surplus)
Increase in gross assets..................	10.00	
Increase in admitted assets..............	10.00	

Items 54-57—"Book Value of Other Ledger Assets over Market Value, Viz:"

These lines are to provide for the excesses of book over market values of any ledger assets not specifically provided for.

Item 58—"Total Admitted Assets".

This item is the difference between Item 44 and the extended amount of Item 57.

SECTION V—LIABILITIES (PAGE 5)

(See Exhibit 4, Page 165)

With the exception of capital and a few unimportant ledger liabilities the various items of liabilities are not taken from the books of account but are determined by inventory and formula methods.* The most important items are the claim and unearned premium reserves, which usually account for from 85% to 90% of the total liabilities excluding capital. In addition to the claim and unearned premium reserves specific provision is made for liabilities or reserves for claim expense, commissions due or to become due, salaries and other expenses due or accrued, taxes due or accrued, declared and unpaid dividends, borrowed money and interest due or accrued thereon and return and reinsurance premiums payable which have not been entered on the accounting records or which are not handled through the accounts under the usual methods of premium accounting described in this paper.

It seems unnecessary to comment upon each individual item of this section and to attempt to describe the methods, formulae and accounting practices prescribed for or adopted by the companies is beyond the scope of this paper.

The difference between the "Total Admitted Assets", Item 58, Page 4, and the sum of "Total amount of all liabilities, except capital", Item 47, and "Capital paid up", Item 48, produces the "Surplus over all liabilities", or company surplus, Item 49.

Item 50, the sum of Items 48 and 49, is designated as the "Surplus as regards policyholders".

Item 51, "Total," is the sum of Items 47 and 50 and, as indicated, balances with Item 58, Page 4.

*Page 5 of the annual statement blank does not, in theory, contemplate ledger liabilities, other than capital, but these sometimes occur in practice.

EXHIBIT 4

Form 3 ANNUAL STATEMENT FOR THE YEAR 1928 OF THE 5
(Write or stamp name of Company)

V—LIABILITIES

1. Losses and claims:	(1) Adjusted or in process of adjustment	(2) Resisted	(3) Deduct reinsurance per schedule E column (2)	(4) Net unpaid claims excluding incurred but not reported	(5) Incurred but not reported	(6) Total net unpaid claims except liability and workmen's compensation claims (excluding expenses of investigation and adjustment)
2. Accident						(d)
3. Health						(d)
4. (c) Non-cancellable accident and health						(d)
5. Fidelity						
6. Surety						
7. Plate glass						
8. Burglary and theft						
9. Steam boiler						
10. Machinery						
11. Auto property damage						
12. Auto collision						
13. Property damage and coll. other than auto						
14. (a)						
15. TOTALS						

16. Special reserve for unpaid liability losses . . . . $..............................
and Workmen's Compensation losses . . . . $..............................

17. Special reserve for credit losses on policies expiring in October, November and December of current year, being fifty per cent of $.........................., gross premiums received on said policies, less $.....................paid on losses under said policies . . . .

18. Special reserve for accrued losses on credit policies in force December 31 of current year, being fifty per cent of $.......................... earned premiums on said policies, less $.....................paid on losses under said policies . . ..

19. Total unpaid claims . . . . $..............................

20. Estimated expenses of investigation and adjustment of unpaid claims:

21. Accident $....................; Health $....................; Non-cancellable accident and health $....................; Fidelity $....................;

22. Surety $....................; Plate glass $....................; Burglary and theft $....................; Steam boiler $....................;

23. Machinery $....................; Auto prop. damage $....................; Auto collision $....................; Property damage and collision other than auto $....................;

24. (b).............. $....................; ....$....................; ....$....................; ....$.................... ....

25. Total unearned premiums as shown by recapitulation, page 7 . . . .

25½ (c) Additional reserve on non-cancellable accident and health policies $...................., less $.................... reserve on policies reinsured ....

26. Commissions, brokerage and other charges due or to become due to agents or brokers on policies effective on or after October 1 of current year, viz:

27. Accident $....................; Health $....................; Non-cancellable accident and health $....................; Auto liability $....................;

28. Liability other than auto $....................; Workmen's compensation $....................; Fidelity $....................; Surety $....................;

29. Plate glass $....................; Burglary and theft $....................; Steam boiler $....................; Machinery $....................;

30. Auto prop. damage $....................; Auto collision $....................; Property damage and collision other than auto $....................; (b) ....$....................; ....

31. Salaries, rents, expenses, bills, accounts, fees, etc., due or accrued . . . .

32. Estimated amount hereafter payable for federal, state and other taxes based upon the business of the year of this statement . . . .

33. Dividends declared and unpaid to stockholders, $...................., to policyholders, $.................... . . . .

34. Due and to become due for borrowed money . . . .

35. Interest due or accrued . . . .

36. Return premiums, gross as to commissions . . . .

37. Reinsurance . . . .

38. Other liabilities, viz:

39. .... $..............................

40. ....

41. ....

42. ....

43. ....

44. ....

45. ....

46. ....

47. Total amount of all liabilities, except capital . . . . $..............................

48. Capital paid up . . . . $..............................

49. Surplus over all liabilities . . . .

50. Surplus as regards policyholders . . . .

51. Total . . . . $..............................

(a) Enter "Credit (on policies expiring prior to October of current year)," "Live Stock," or "Sprinkler."
(b) Enter "Credit," "Live Stock," or "Sprinkler."
(c) State reserve basis and describe methods used.
(d) Including $....................for present value of life indemnity claims.

Underwriting and Investment Exhibit

(See Exhibit 5, Pages 167 and 168)

The underwriting and investment exhibit corresponds to what is designated in general commercial accounting as the "Profit and Loss" account. In this exhibit the statement is transformed (in summary form) from a "cash" to a "revenue" basis and, in addition, shows the gains or losses from various sources and the disposition thereof. The exhibit is divided into three main partsas follows:

(1) Underwriting exhibit
(2) Investment exhibit
(3) Miscellaneous exhibit

The various subdivisions of Part (1) arranged in debit and credit order are:

	Debit		Credit
Premiums earned	..		X
Losses incurred	X		..
Underwriting expenses incurred	X		..
Underwriting profit or loss items	X	or	X

The net balance (Item 40) of the foregoing produces the net gain or loss from underwriting, including underwriting profit and loss.

The various subdivisions of Part (2) arranged in debit and credit order are:

	Debit	Credit
Interest and rents earned	..	X
Investment expenses incurred	X	..
Profit on investments	..	X
Loss on investments	X	..

The net balance (Item 68)of the foregoing produces the net gain or loss on investments, including investment profit and loss.

The various subdivisions of Part (3) arranged in debit and credit order are:

	Debit		Credit
Dividends declared to stockholders	X		..
Dividends declared to policyholders	X		..
Remittances from home office	..		X
Remittances to home office	X		..
Increase (or decrease) in special reserves	X	or	X
(Gain or loss) from other sources	X	or	X

The net balance (Item 78) of the foregoing produces the net gain or loss in surplus from miscellaneous sources after deduction of dividends to stockholders (and/or policyholders) and special reserve adjustments.

The algebraic sum (+ = credit balance or gain; − = debit bal-

EXHIBIT 5

8 ANNUAL STATEMENT FOR THE YEAR 1928 OF THE .... (Write or stamp name of Company) FORM 3

UNDERWRITING AND INVESTMENT EXHIBIT

Showing the Sources of the Increase and Decrease in Surplus During the Year

UNDERWRITING EXHIBIT				GAIN IN SURPLUS	LOSS IN SURPLUS
PREMIUMS					
1. Total premiums, per item 20, page 2					
2. Add unpaid return and reinsurance premiums December 31 of previous year, per item 4 of last year's exhibit					
3. Total					
4. Deduct unpaid return and reinsurance premiums December 31 of current year, per items 36 and 37, page 5					
5. Balance					
6. Add unearned premiums and additional reserve December 31 of previous year, per item 8 of last year's exhibit					
7. Total					
8. Deduct unearned premiums and additional reserve Dec. 31 of current year, per items 25 and 25½ page 5					
9. **Premiums earned during the year**					
LOSSES					
10. Losses paid, per item 17, page 3					
11. Add salvage and reinsurance recoverable December 31 of previous year, per item 13 of last year's exhibit					
12. Total					
13. Deduct salvage and reinsurance recoverable December 31 of current year, per items (a) ...., page 4					
14. Balance					
15. Add unpaid losses December 31 of current year, per item 19, page 5					
16. Total					
17. Deduct unpaid losses December 31 of previous year, per item 15 of last year's exhibit					
18. **Losses incurred during the year**					
UNDERWRITING EXPENSES					
19. (c) Underwriting expenses paid during the year, per disbursement exhibit, page 3					
20. (a) Add underwriting expenses unpaid December 31 of current year, per liabilities exhibit, page 5, viz:—					
21. Total					
22. (a) Deduct underwriting expenses unpaid December 31 of previous year, per item 20 of last year's exhibit					
23. **Underwriting expenses incurred during the year**					
24. **Underwriting losses and expenses**					
25. (b)............**from underwriting during the year**					
UNDERWRITING PROFIT AND LOSS ITEMS					
26. Gain from:					
27. Inspections, per item 21, page 2					
28. Agents' balances previously charged off, per item 37, page 2					
29. Other underwriting income, per income exhibit, page 2(a)					
30. Total					
31. Loss from:					
32. Agents' balances charged off, per item 55, page 3					
33. Other underwriting disbursements, per disbursement exhibit, page 3, other than losses and expenses, per items 10 and 19 of this exhibit (a)............					
34. Total					
35. (b)............ from items 26 to 34					
36. Bills receivable and premiums in course of collection not admitted December 31 of previous year, per item 39 of last year's exhibit . . . $............					
37. Bills receivable and premiums in course of collection not admitted December 31 of current year, per items 48 and 49, page 4 . . . $............					
38. (b)............from items 36 and 37					
39. (b)............**from profit and loss items**					
40. (b)............**from underwriting and profit and loss items during the year**					
41. Carried forward					

(a) Give statement number of each item or portion thereof included herein.
(b) Write "Gain" or "Loss".
(c) In order to secure uniformity in the reports of the various companies, all companies are directed to include in this item all disbursements, except payments to policyholders, per item 17, page 3; agents' balances charged off, in item 55, page 3; repairs, expenses and taxes on real estate; such other taxes and fees as apply to investments and personal property only; dividends to stockholders; loss on sale or maturity and decrease in book value of ledger assets, and such other items, if any, as are known to apply exclusively to the assets of the company, and to deduct from the total of said items as investment expenses one-eighth of one per cent. of the mean invested assets, viz: Real estate owned, mortgage loans, collateral loans and stocks and bonds owned.

EXHIBIT 5 (Cont'd)

Form 3 ANNUAL STATEMENT FOR THE YEAR 1928 OF THE.. 9

(Write or stamp name of Company)

					Gain in Surplus	Loss in Surplus
	INVESTMENT EXHIBIT					
42.	Brought forward					
	INTEREST AND RENTS					
43.	Interest, dividends and rents received during the year, per item 30, page 2, less item 54, page 3					
44.	Deduct interest, dividends and rents due and accrued December 31 of previous year, per item 48 of last year's exhibit					
45.	Balance					
46.	Add interest, dividends and rents due and accrued December 31 of current year, per item 38, page 4, less item 35, page 5					
47.	Add interest and rents paid in advance December 31 of previous year, per item 51 of last year's exhibit					
48.	Total					
49.	Deduct interest and rents paid in advance December 31 of current year, per liability exhibit, page 5					
50.	**Gross interest and rents earned during the year**					
	INVESTMENT EXPENSES					
51.	(d) Investment expenses paid during the year, per disbursement exhibit, page 3. (Attach exhibit)............					
52.	Deduct investment expenses unpaid December 31 of previous year, per item 56 of last year's exhibit					
53.	**Balance**					
54.	(a) Add investment expenses unpaid December 31 of current year, per liabilities exhibit, page 5, viz:—......					
55.	**Investment expenses incurred during the year**					
56.	**Net interest and rents earned during the year**					
	PROFIT ON INVESTMENTS					
57.	Gain from sale of ledger assets, per item 38, page 2					
58.	Gain from increase in book value of ledger assets, per item 39, page 2					
59.	Gain from change in difference between book and market value during the year					
60.	Gain from other investments, viz:—(Give items and amounts)............					
61.	**Profit on investments during the year**					
	LOSS ON INVESTMENTS					
62.	Loss from sale of ledger assets, per item 56, page 3					
63.	Loss from decrease in book value of ledger assets, per item 57, page 3					
64.	Loss from change in difference between book and market value during the year					
65.	Loss from other investments, viz:—(Give items and amounts)............					
66.	**Loss on investments during the year**					
67.	(b)..................**from investment profit and loss items**					
68.	(b)..................**from investments during the year**					
69.	Total gains and losses from Underwriting and investments					
	MISCELLANEOUS EXHIBIT		Gain in Surplus	Loss in Surplus		
70.	Dividends declared to stockholders during the year					
71.	Dividends declared to policyholders during the year					
72.	Remittances from Home Office (gross)					
73.	Remittances to Home Office (gross)					
74.	............crease in special reserves					
75.	(a,) (b)..........................from other sources:					
76.						
77.						
78.	Net (b)..........................from items 70-77					
79.	Total gains and losses in surplus during the year					
80.	Surplus December 31 of previous year, per item 83 of last year's exhibit					
81.	Surplus December 31 of current year, per item 49, page 5					
82.	............**crease in surplus during the year** (enter in column to balance)					
83.	Totals					
84.	Per cent. of losses incurred to premiums earned..............................					
85.	Per cent. of underwriting expenses incurred to premiums earned..............................					
86.	Per cent. of investment expenses incurred to gross interest and rents earned..............................					
87.	Per cent. of total losses and expenses incurred and dividends declared to total income earned (sum of lines 24, 55, 66, 70 and 71 divided by the sum of lines 9, 39, 50 and 61)..............................					

(a) Give statement number of each item or portion thereof included herein.
(b) Write "Gain" or "Loss".
(d) Include in this item one-eighth of one per cent. of the mean invested assets; repairs, expenses and taxes on real estate; such other taxes and fees as apply to investments and personal property only; and such other items, if any, as are known to apply exclusively to the assets of the company.

ance or loss) of the net balances of the three subdivisions produces the net increase or decrease in surplus during the year—Item 82.

The various items of the underwriting and investment exhibit are all obtainable from Sections I-V of the current year's annual statement and Sections IV, V and the underwriting and investment exhibit of the previous year's statement. It should be pointed out that in arriving at the investment expenses paid during the year it is arbitrarily assumed—see footnote (d), Page 9 of statement—that a portion of general expense equal to ⅛ of 1% of mean invested assets (Items 1-4, Page 4 of statement) is chargeable to investments in addition to all specific investment expense. In order to preserve the statement balance, this arbitrary amount is deducted from underwriting expenses paid (Item 19, Page 8 of statement).

The earned income and incurred losses and expenses are determined from the cash income, cash disbursements, non-ledger assets, non-admitted assets and non-ledger liabilities by means of the following basic formulae:

Earned Income

(1) To: Cash income (net)
(2) Add: The current year's non-ledger asset
(3) Add: The previous year's non-ledger liability (or liabilities)
(4) Deduct: The previous year's non-ledger asset
(5) Deduct: The current year's non-ledger liability (or liabilities)
(6) Balance = Earned income

The foregoing formula applies to the subsections headed Premiums and Interest and Rents.

Incurred Losses and Expenses

(1) To: Cash disbursements
(2) Add: The current year's non-ledger liability (or liabilities)
(3) Add: The previous year's non-ledger asset
(4) Deduct: The previous year's non-ledger liability (or liabilities)
(5) Deduct: The current year's non-ledger asset
(6) Balance = Incurred losses (or expenses)

The foregoing formula applies to the subsections headed Losses, Underwriting Expenses and Investment Expenses.

The above formulae are inclusive so to speak. For example, in determining earned premiums (first formula) only Items (1), (3) and (5) are used in most instances as Items (2) and (4) are usually "O". Similarly, in determining incurred expenses (second formula) only Items (1), (2) and (4) are used in most instances as Items (3) and (5) are usually "O".

The items included in Lines 27-35, Page 8 of statement and Lines 57, 58, 62, 63, 70, 71, 72 and 73, Page 9 of statement, do not involve non-ledger items but are taken direct from the income or disbursement pages.

Gains or losses involving only non-ledger assets, non-admitted assets, or non-ledger liabilities and not income and disbursements are determined by taking the differences between such items in the current and previous year's statements. These include the following:—Item 38, Page 8 of statement, and Items 59 or 64, 60 or 65 and 74, Page 9 of statement.

In case of companies which value their bonds on the amortization basis, the net amount of the increases for accrual of discount and the decreases for amortization of premiums is reported as interest in Item 43, Page 9 of statement instead of in Items 58 and 63 respectively. This procedure is in harmony with the theory of valuation on the amortized basis, since the effective interest and not the nominal interest should be credited to interest account.

Conclusion

The foregoing is intended merely as an introduction to the subject of casualty insurance bookkeeping and accounting and a necessarily limited exposition of the requirements of the financial sections and the underwriting and investment exhibit of the casualty annual statement blank. References to other exhibits and the various supporting schedules have purposely been omitted as a consideration of these features would have extended the paper to an undesirable length. It is the intention of the writer to present a paper upon these features at some subsequent meeting, provided the need for the same has not been met in the meantime by some suitable paper or other text.

MASSACHUSETTS COMPULSORY AUTOMOBILE LIABILITY INSURANCE

BY

WILLIAM J. CONSTABLE

At a meeting of the Casualty Actuarial Society held on May 13, 1927 I presented a paper entitled "Compulsory Automobile Insurance" (*Proceedings*, Vol. XIII, page 188), which dealt wholly with the problems encountered prior to January 1, 1927 when the Massachusetts Compulsory Motor Vehicle Security Law became effective. It is time that another paper was presented in order that our members may be kept informed of the developments.

The first set of rates for the writing of policies under the Compulsory Security Law was established by the Commissioner of Insurance on September 1, 1926. As pointed out in my previous paper no experience under a compulsory law was available and the rates had to be determined for new conditions from a study of the experience on voluntarily insured cars.

In July 1927 the first experience under the compulsory law became available. This experience was for the first five months of 1927. It was required by statute that the rates for 1928 must be available by September 1, 1927, so that it was impossible to wait for any greater spread of experience if the 1928 rates were to be based upon any data developed under the law. The rates for 1927 were established by the Commissioner of Insurance as required by the statutes but it was further provided in the statutes that rates for subsequent years should be approved by the Commissioner rather than be established by him. It was incumbent on the insurance companies, therefore, to review the five months' experience and submit rates to the Commissioner of Insurance for his approval.

The experience for the first five months of 1927 was very meager. It was readily apparent from these data that the rates for 1927 were going to be inadequate but because of the limited exposure it could not be ascertained with any degree of accuracy just how much too low the rates would prove to be nor whether the inadequacy was due to a particular locality or type of car. The insurance companies, therefore, in spite of the fact that it was known that the rates were inadequate, recommended to the Commissioner of

Insurance that the 1927 rates be continued for 1928 and this recommendation was approved by the Commissioner.

During the summer of 1928, however, conditions with respect to rates were radically different than they had been in the summer of 1927. The law had been amended so that once again the Commissioner of Insurance was required to establish rates. In place of having only five months' experience available there now was the experience of the full year of 1927 tabulated for review. The experience was based upon losses paid to March 31, 1928 with outstanding losses valued as of a date not earlier than March 31. The outstanding losses were filed with the Massachusetts Automobile Bureau during April 1928 and the tabulation was completed early in June.

Before proceeding further in this history of Massachusetts Automobile rates we must get before us the make-up of the 1927 rates. As established by the Commissioner of Insurance the 1927 rates were divided as follows:

Losses	59.8%
Expenses	37.7%
Profit	2.5%

With a permissible loss ratio of 59.8% underlying the rates, the test for adequacy is a comparison of this permissible loss ratio with the loss ratio actually produced.

The combined state-wide statutory experience on a manual rate basis for 1927 with losses valued not earlier than March 31, 1928 was as follows:

Earned Premiums	$16,806,377
Incurred Losses	11,538,131
Incurred Loss Ratio	68.7%

Since the actual 1927 loss ratio for all classes over the entire state was 68.7% it was self-evident that as regards 1927 the rates were inadequate in the ratio of 68.7% to 59.8% or approximately 15%.

An analysis of the experience indicated, of course, that a flat upward increase of 15% in all rates, while producing an adequate rate level, would not be just nor non-discriminatory as required by law. The actual loss ratio for all private passenger cars was 73.5% while the actual loss ratio for all commercial cars was only 58.2%. It was obvious that a flat increase was not proper for both private passenger and commercial cars. The actual 1927 loss ratio for Territory 1 was 76.4% while the actual loss ratio for Territory 2 was 66.6% and for Territory 3 only 61.3%. A flat increase over the entire state was obviously incorrect.

The problem before the Bureau was to analyze the experience to determine its credibility and to recommend to the Commissioner of Insurance the best judgment of the Bureau as to any changes in classifications and rates which were necessary to meet the requirements of the law.

It was apparent from simply a casual glance at the experience that the pure premiums for the towns in each territory varied widely, even where there was a fair amount of exposure and the question immediately arose as to how far it was possible to true up the rates by selecting pure premiums for individual towns. An attempt to do this soon led into difficulty, for if one town with a certain exposure was treated individually other towns of like exposure must be treated similarly. The degree of variation from the average has little bearing, for if a certain exposure received full credibility in one case, the same exposure must receive full credibility in all cases if exposure is the only criterion recognized. The Bureau, therefore, adopted the principle that with only a single year of experience, no single city or town would be selected as having a sufficient exposure to indicate its own rate. Acting on this principle no single city or town was changed from one territory to another regardless of whether its experience varied upward or downward from the average. The proposed changes recognized the principle of charging particular towns for bad experience and giving credit to towns with good experience but did this only as respects groups of towns. On one year's experience this procedure was justified. When another year's data are available it may be possible to go still farther and base the rates for some towns on their own experience and to go part way in the direction of the town indication in many other cases.

During 1927 and 1928 the Commonwealth of Massachusetts was divided into three territories for rating purposes, as follows:

Territory 1—Boston and 17 other cities and towns closely surrounding Boston.

Territory 2—Boston Suburban, together with Fall River, New Bedford, Worcester and Springfield with their respective suburbs.

Territory 3—Remainder of the State.

In the analysis of Territory 1 it was apparent that there were two distinct groups of towns within each of which the variation in pure premiums is not so marked.

Territory 1 A		*Territory 1 B*	
Chelsea	58.93	Malden	25.67
Revere	45.00	Brookline	24.05
Boston	32.02	Milton	23.87
Somerville	30.55	Quincy	22.95
Cambridge	30.43	Arlington	21.54
Everett	28.85	Winchester	21.52
Winthrop	27.35	Medford	21.33
		Watertown	20.56
		Dedham	17.27
		Belmont	17.00
Average	32.67	Average	21.25

The exposure in the territory referred to as 1 A was 92,750 car years and in Territory 1 B the exposure was 56,230 car years. The Bureau recommended that this division of Territory 1 be made for 1929. It is justified not only by the experience but by a knowledge of the conditions surrounding Boston. All of the towns in the proposed Territory 1 A are on what is known as the North Shore Route. Practically all the traffic leaving Boston for the North Shore passes through these seven towns and along one heavily congested boulevard which, of course, is conducive to accidents. While there is some variation within each proposed territory from the average pure premium, the greatest variations are in the towns with the smaller exposures which, if recognized, require similar treatment for other towns of like exposure.

Territory 2 divides itself geographically into four main sections —Boston Suburban, Fall River and New Bedford, Worcester and Springfield with the following pure premiums.

Boston Suburban	18.38
Fall River and New Bedford	15.21
Worcester	15.87
Springfield	15.50

It was obvious that a division of Territory 2 into two parts was proper. The pure premiums for Fall River and New Bedford, Worcester and Springfield are so close together that they can be grouped for rating purposes but should be separated from Boston Suburban. The Bureau recommended, therefore, that this division be made.

Territory 3, which contains all the other towns in the state, does not divide itself naturally into any groups of towns nor was there any radical variance in pure premium so the Bureau recommended the continuance of this territory without change.

Summarized, the Bureau recommended that for 1929 there be five territories for private passenger cars in place of the three territories in 1927 and 1928 and that these territories be constituted as follows:

Territory 1	*Territory 2*	*Territory 3*	*Territory 4*	*Territory 5*
Chelsea	Malden	Boston Suburban	Fall River & Suburbs	Remainder of State
Revere	Brookline		New Bedford & Suburbs	
Boston	Milton		Worcester & Suburbs	
Somerville	Quincy		Springfield & Suburbs	
Cambridge	Arlington			
Everett	Winchester			
Winthrop	Medford			
	Watertown			
	Dedham			
	Belmont			
	Newton			

After having decided on the territorial divisions of the state for private passenger cars the next problem was the selection of pure premiums for the respective classification divisions.

In the proposed Territory 1 A the division was—

W	31.27
X	31.81
Y	41.54
Average	32.67

The pure premiums for W and X cars were so close together as to make a differential unwarranted. The combined W and X experience indicated a pure premium of 31.51. The Bureau recommended, therefore, that the pure premium indicated by the combination of W and X cars of 31.51 be used as a basis for the 1929 rates for W and X cars in Territory 1 A and that the indicated pure premium of 41.54 be used for Y cars.

A similar situation was apparent in Territory 1 B where the pure premiums were—

W	20.96
X	19.93
Y	26.65
Average	21.25

The Bureau recommended that the pure premium indicated by the combination of W and X cars of 20.49 be used as a basis for the 1929 rates for W and X cars in Territory 1 B and that the indicated pure premium of 25.65 be used for Y cars.

For Territory 2 A the Bureau recommended the adoption of the indicated pure premiums of—

W	16.41
X	19.76
Y	25.00
Average	18.38

For Territory 2 B the Bureau recommended the adoption of the indicated pure premiums of—

W	13.97
X	15.47
Y	23.41
Average	15.53

For Territory 3 the Bureau recommended the adoption of the indicated pure premiums of—

W	9.10
X	13.92
Y	18.65
Average	11.35

The situation with respect to commercial cars was radically different from that for private passenger cars. The combined state-wide loss ratio for all commercial cars was 58.2% as compared with the permissible loss ratio of 59.8%. This would indicate a reduction of 2.7% in the rate level for commercial cars. A flat reduction, of course, is justified only if it can be shown that the reduction is not confined to an individual territory or classification.

By territory the commercial car experience indicated loss ratios of—

Territory 1	58.4%
Territory 2	58.2%
Territory 3	57.6%

By classification the commercial car experience for the entire state indicated loss ratios of—

Class 2	51.0%
Class 3	60.1%
Class 4	58.2%

By weight of vehicle the commercial car experience for the entire state indicated loss ratios of—

Heavy	45.9%
Medium	56.1%
Light	61.6%

It was apparent that the territorial differentials were proving satisfactory and a flat reduction was proper over the state. By classification the only group out of line was Class 2 for which the exposure was only 69.4 car years. By weight of vehicle the only group out of line was the Heavy group for which the exposure was only 4522. car years.

The Bureau recommended, therefore, that no changes be made in the 1927 and 1928 territories but that all commercial car pure premiums be reduced 2.7% as indicated.

The public automobile classes in the manual permit of the writing of insurance in a number of ways. Livery cars and busses may be written on either a specified car basis or on an earnings basis. Taxicabs may be written on a specified car basis or on a mileage basis. It was obvious that the exposure on each class was too small to be indicative but as a whole the public automobile experience indicated that the rates for 1927 and 1928 were too high.

The combined loss ratio for all public automobile classifications for the entire state was 49.8% which when compared with the permissible loss ratio of 59.8% indicated a reduction of 16.7% and the Bureau recommended that the pure premiums underlying the 1927 and 1928 rates be reduced 16.7% as a basis for the 1929 rates.

The next step in the development of rates was the determination of the expense loading. In the 1927 and 1928 rates the expense loading totaled 40.2%, divided as follows:

Administration	8.7
Claims	10.4
Bureau & Inspection	1.1
Taxes	2.5
Acquisition	15.0
Profit	2.5
	40.2

The Constitution of the Bureau provides that the expense loading shall be determined by the stock companies on the basis of their own experience. In response to a call for experience data the stock companies reported as follows:

Administration	8.63%
Claims	9.96
Inspection	.91
Bureau	.21
Field Supervision	2.51
Acquisition	16.76
Taxes	2.50
Miscellaneous	.04
	41.52

The administrative cost is not a direct function of the rate level as are some of the other expense items. With a higher premium level the amount of dollars expended for administration would not change necessarily. With an increase in pure premiums as recommended, the same amount of dollars expended for administration would be only 7.50% of the new premium level.

The brokers and agents had protested the decrease in the commission allowed in the 1927 and 1928 rates and had requested the companies to recommend a higher commission level for 1929.

After considering these data together with the request of the producers the Bureau recommended the following expense loading for 1929:

Administration	7.50%
Claims	9.96
Bureau & Inspection	1.00
Field Supervision & Acquisition	20.00
Taxes	2.50
Profit	2.50
	43.46%

The pure premiums and expense loadings recommended by the Bureau were all based directly on the 1927 experience. The rates, however, were for 1929 and there was a feeling on the part of the companies that these data were not indicative of 1929 conditions. Consideration was, therefore, given to the trend of experience as shown by the 1928 experience brought down to May 31, 1928. A comparison of the five months' experience for 1927 and 1928 showed—

	1927	1928
Earned Premiums	5,150,302	6,048,436
Incurred Losses	2,629,881	3,471,140
Loss Ratio	51.1%	57.4%

A comparison of these loss ratios would indicate that the first five months of 1928 were 12.3% worse than for a corresponding period of 1927.

As a check against the increase in earned premiums, the registration figures of the Registry of Motor Vehicles for 1927 and 1928 showed—

	1927	1928
January	377,651	421,162
February	27,655	27,117
March	67,744	54,028
April	116,526	114,777
May	56,918	68,448

Reduced to a basis of earned car years as of May 31 these figures would be—

	1927	1928
Earned Car Years	208,760	223,561
Incurred Losses	2,629,881	3,471,140
Pure Premiums	12.60	15.53

These pure premiums would indicate that the first five months of 1928 were 23% worse than the first five months of 1927.

The Bureau recommended, therefore, that a trend factor of 1.15 be introduced into the rates for 1929.

These recommendations were presented to the Commissioner of Insurance in August 1928. After a complete explanation of the reasoning of the Bureau committee the Commissioner was satisfied with the revised territories and the proposed pure premiums. He refused to permit of the introduction of the trend factor and made no announcement at that time of the expense loading which he would use in establishing rates.

The statutory law requires that the rates be established after a public hearing. In accordance with this provision of the law the Commissioner called a public hearing for August 17, 1928. There was no provision in the law as to how this hearing should be conducted nor as to what basis should be used for discussion. The Commissioner of Insurance, however, decided that it was his duty to inform the public as to some of the conclusions which he had reached and give some indication as to what he proposed to do. He, therefore, opened the hearing by stating that he had practically decided to change the territories from three to five and gave the pure premiums which he contemplated using. The newspaper men took the pure premiums which the Commissioner announced and using the existing expense loading broadcast the resulting rates.

The new Territory 1, of course, showed a large increase and immediately trouble arose. A national election, as well as a state election, was approaching. Politicians sought to make capital out of the increases and pressure was brought upon the Commissioner of Insurance to change his mind. Reserves were attacked and the Commissioner was accused of accepting the figures of insurance companies without check. The newspapers were full of criticism of the Commissioner and the companies. The Commissioner was firm, however, in his belief that he was correct in doing what he felt was proper and refused to yield to the terrific pressure brought to bear upon him by political aspirants.

The law required that rates be established by September 1 and for over two weeks the Commissioner of Insurance was a target to be vilified, threatened and cajoled in an attempt to force him to give way. He was not physically able to withstand the pressure put upon him, and on September 1 he resigned without establishing rates for 1929. As a matter of record in the Society's *Proceedings*, I quote two paragraphs from the letter of resignation to the Governor.

> "The result is that no memorandum revising these rates will be filed by me, and the rates established for the year 1928 will stand. This relieves you and his honor, the Lieutenant-Governor, of any necessity of fighting me in the courts, and the Attorney-General of the necessity of defending me against his will.
>
> "As I view the whole matter now, this unusual situation of an under-executive having to contest with his superiors in authority is the result of an attempt to solve a mathematical problem by the introduction of a factor of political expediency. This is neither right nor proper."

This resignation placed the companies in a very precarious position. The letter of resignation intimated that it was the Commissioner's understanding that existing rates would continue. The companies could not afford to continue to write this business at existing rates so counsel was retained to examine the facts and the law to determine upon a course of action. The result was that a petition was filed with the Supreme Court based on the premise that no rates for 1929 were available. In November 1928 the Supreme Court upheld this contention and after ruling that no rates were available for 1929 ordered the Acting Commissioner of Insurance to establish rates forthwith.

On November 17, 1928 the Acting Commissioner of Insurance established rates for 1929 as ordered by the Supreme Court. These rates are based upon the territories and pure premiums as recommended by the companies with but little change. A revaluation of reserves as of September 1, 1928 indicated that the cases settled between April 1 and September 1 had been settled for five per cent. less than the reserves set up as of April 1. This five per cent. spread over all the losses amounted to two per cent.

so the Acting Commissioner of Insurance reduced all pure premiums two per cent. He also reduced the acquisition expense five per cent. which made a reduction in the rate level of ten per cent. from that proposed by the companies except for the trend factor which was not allowed by either the Commissioner or the Acting Commissioner.

The net effect of this change in rates was an increase in rate level of 6.1%. By territories the change was as follows:

Territory 1	27.4%	Increase
2	8.0%	Decrease
3	8.0%	Increase
4	8.6%	Decrease
5	4.9%	Decrease
Average	6.1%	Increase

Approximately fifty bills proposing changes in the Motor Vehicle Security Law have been introduced into the present Legislature. These bills range from state fund bills to bills repealing the act. There are bills to eliminate territorial divisions and a bill for requiring operators instead of owners to provide the security. The Insurance Committee of the Legislature has proposed that none of these bills be passed but that a Special Recess Commission be appointed to investigate all phases of the Compulsory Motor Vehicle Security Law including rates and report at the next session of the Legislature in 1930. This proposed investigation has passed both houses of the Legislature and is now awaiting the Governor's signature.

While the net effect of the revision is a 6.1% increase it must be borne in mind that with the acquisition cost reduced 5% the companies have available for losses considerably more than represented by the 6.1% increase. The companies must now operate on a permissible loss ratio of 65.5% in place of 59.8% as in 1927 and 1928.

This paper is more or less historical. It was written with the feeling that a record of the Massachusetts experiment with the first Compulsory Motor Vehicle Security Law should be made available for the members of the Society. There are a number of appendices to the paper which need no explanation but which will enable members to see the whole picture in concrete form.

APPENDIX A

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE
POLICY YEAR 1927

Compiled June, 1928

ALL TERRITORIES ALL CLASSES

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
Private Passenger								
W	257,122.3	5,649,494	4,291,181	18,002	7.00	238	16.69	76.0
X	164,955.7	4,740,833	3,332,785	14,324	8.68	233	20.20	70.3
Y	48,850.5	1,770,399	1,318,490	4,911	10.05	268	26.99	74.5
Total	470,928.5	12,160,726	8,942,456	37,237	7.91	240	18.99	73.5
Commercial								
Class 2:								
Heavy	17.5	1,907	1,879	4	22.86	470	107.37	98.5
Medium	253.8	31,607	16,925	94	37.04	180	66.69	53.5
Light	423.1	43,698	20,612	82	19.38	251	48.72	47.2
Total	694.4	77,212	39,416	180	25.92	219	56.76	51.0
Class 3:								
Heavy	1,821.9	190,245	95,717	411	22.56	233	52.54	50.3
Medium	3,722.2	261,828	168,640	691	18.56	244	45.31	64.4
Light	3,145.1	154,694	100,310	454	14.44	221	31.89	64.8
Total	8,689.2	606,767	364,667	1,556	17.91	234	41.97	60.1
Class 4:								
Heavy	2,682.9	204,023	84,410	403	15.02	209	31.46	41.4
Medium	12,938.9	687,021	384,455	1,663	12.85	231	29.71	56.0
Light	40,032.5	1,290,800	795,954	3,697	9.23	215	19.88	61.7
Total	55,654.3	2,181,844	1,264,819	5,763	10.35	219	22.73	58.0
Public Automobiles								
Specified	2,995.4	330,236	134,412	598	19.96	225	44.87	40.7
Earnings	35,518	134,424	122,735	385	1.08	319	3.46	91.3
Mileage	316,545	545,534	246,157	1,260	.004	195	.01	45.1
Garages, Dealers and Manufacturers								
Payroll	435,611	516,566	262,191	1,030	.24	255	.60	50.8
Specified	327.1	11,236	2,056	13	3.97	158	6.29	18.3
Earnings	5,033	15,224	6,002	26	.52	231	1.19	39.4
Miscellaneous Classes—Specified Car Basis								
Total	11,540.0	226,608	153,220	471	4.08	325	13.28	67.6

APPENDIX B

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE

POLICY YEAR 1927

Compiled June, 1928

TOTAL TERRITORY I

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
Private Passenger								
W..........	71,446.8	2,071,958	1,966,379	8,581	12.01	229	27.52	94.9
X..........	58,565.3	2,166,916	1,601,676	7,488	12.79	214	27.35	73.9
Y..........	18,967.3	853,532	656,311	2,684	14.15	245	34.60	76.9
Total	148,979.4	5,092,406	4,224,366	18,753	12.59	225	28.36	83.0
Commercial								
Class 2:								
Heavy ...	2.7	572	88	1	37.04	88	32.59	15.4
Medium ..	97.5	18,914	13,300	79	81.03	168	136.41	70.3
Light	177.3	28,014	12,077	52	29.33	232	68.12	43.1
Total	277.5	47,500	25,465	132	47.57	193	91.77	53.6
Class 3:								
Heavy ...	839.3	126,736	51,808	252	30.03	206	61.73	40.9
Medium ..	1,384.6	156,461	100,814	406	29.32	248	72.81	64.4
Light	961.1	81,698	49,981	249	25.91	201	52.00	61.2
Total	3,185.0	364,895	202,603	907	28.48	223	63.61	55.5
Class 4:								
Heavy ...	1,337.9	143,154	56,626	294	21.97	193	42.32	39.6
Medium ..	4,653.0	395,509	211,276	1,012	21.75	209	45.41	53.4
Light	10,789.5	625,791	424,793	1,964	18.20	216	39.37	67.9
Total	16,780.4	1,164,454	692,695	3,270	19.49	212	41.28	59.5
Public Automobiles								
Specified...	790.0	112,354	42,554	249	31.52	171	53.87	37.9
Earnings..	12,839	53,926	66,580	196	1.53	340	5.19	123.5
Mileage....	285,711	499,996	205,844	1,098	.004	187	.01	41.2
Garages, Dealers and Manufacturers								
Payroll	239,083	334,629	144,282	586	.25	246	.60	43.1
Specified...	176.0	6,128	1,740	8	4.55	218	9.89	28.4
Earnings..	1,422	4,948	2,450	15	1.05	163	1.72	49.5
Miscellaneous Classes—Specified Car Basis								
Total	1,879.4	63,038	46,268	175	9.31	264	24.62	73.4

APPENDIX C

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE

POLICY YEAR 1927

Compiled June, 1928

TOTAL TERRITORY 2

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
Private Passenger								
W	101,121.9	2,224,680	1,554,992	6,494	6.42	239	15.38	69.9
X	63,729.5	1,720,702	1,137,447	4,847	7.61	235	17.85	66.1
Y	18,858.1	641,174	456,560	1,609	8.53	284	24.21	71.2
Total	183,709.5	4,586,556	3,148,999	12,950	7.05	243	17.14	68.7
Commercial								
Class 2:								
Heavy	10.5	1,081	1,791	3	28.57	597	170.67	165.7
Medium	106.3	9,992	3,440	12	11.29	287	32.36	34.4
Light	147.5	11,359	8,535	30	20.34	285	57.86	75.1
Total	264.3	22,432	13,766	45	17.03	306	52.08	61.4
Class 3:								
Heavy	695.0	51,428	35,694	129	18.56	277	51.36	69.4
Medium	1,328.6	73,088	46,077	187	14.07	246	34.68	63.0
Light	1,142.8	47,995	31,996	143	12.51	224	28.00	66.7
Total	3,166.4	172,511	113,767	459	14.50	248	35.93	65.9
Class 4:								
Heavy	932.8	48,503	20,239	89	9.54	227	21.70	41.7
Medium	5,147.6	216,196	125,290	482	9.36	260	24.34	58.0
Light	16,426.9	459,954	262,186	1,316	8.01	199	15.96	57.0
Total	22,507.3	724,653	407,715	1,887	8.38	216	18.11	56.3
Public Automobiles								
Specified	966.4	105,635	49,601	183	18.94	271	51.33	47.0
Earnings	10,458	43,571	45,083	128	1.22	352	4.311	103.5
Mileage	27,957	41,939	37,450	151	.01	248	.013	89.3
Garages, Dealers and Manufacturers								
Payroll	117,267	123,053	84,275	326	.28	259	.72	68.5
Specified	87.7	3,275	16	4	4.56	4	.48	.5
Earnings	820	2,362	72	2	.24	36	.09	3.0
Miscellaneous Classes—Specified Car Basis								
Total	3,941.4	83,188	63,105	183	4.64	345	16.01	75.9

APPENDIX D

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE
POLICY YEAR 1927

Compiled June, 1928

TOTAL TERRITORY 3

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
Private Passenger								
W	84,553.6	1,352,856	769,810	2,927	3.46	263	9.10	56.9
X	42,660.9	853,215	593,662	1,989	4.66	298	13.92	69.6
Y	11,025.1	275,693	205,619	618	5.61	333	18.65	74.6
Total	138,239.6	2,481,764	1,569,091	5,534	4.00	284	11.35	63.2
Commercial								
Class 2:								
Heavy	4.3	254						
Medium	50.0	2,701	185	3	6.00	62	3.70	6.8
Light	98.3	4,325						
Total	152.6	7,280	185	3	1.97	62	1.21	2.5
Class 3:								
Heavy	287.6	12,081	8,215	30	10.43	274	28.56	68.0
Medium	1,009.0	32,279	21,749	98	9.71	222	21.56	67.4
Light	1,041.2	25,001	18,333	62	5.95	296	17.61	73.3
Total	2,337.8	69,361	48,297	190	8.13	254	20.66	69.6
Class 4:								
Heavy	412.2	12,366	7,545	20	4.85	377	18.30	61.0
Medium	3,138.3	75,316	47,889	169	5.39	283	15.26	63.0
Light	12,816.1	205,055	108,975	417	3.25	261	8.50	53.1
Total	16,366.6	292,737	164,409	606	3.70	271	10.05	56.2
Public Automobiles								
Specified	1,239.0	112,247	42,257	166	13.40	255	34.11	37.6
Earnings	12,221	36,927	11,072	61	.50	182	.91	30.0
Mileage	2,877	3,599	2,863	11	.004	260	.01	79.5
Garages, Dealers and Manufacturers								
Payroll	79,261	58,884	33,634	118	.15	285	.42	57.1
Specified	63.4	1,833	300	1	1.58	300	4.73	16.4
Earnings	2,791	7,914	3,480	9	.32	387	1.25	44.0
Miscellaneous Classes—Specified Car Basis								
Total	5,719.2	80,382	43,847	113	1.98	388	7.67	54.5

APPENDIX E

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE

POLICY YEAR 1927

Compiled June, 1928

TOTAL TERRITORY 1A

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
Private Passenger								
W	45,484.8	1,319,059	1,422,322	6,443	14.17	221	31.27	107.8
X	36,576.9	1,353,345	1,163,471	5,515	15.08	211	31.81	86.0
Y	10,688.0	480,961	443,955	1,900	17.78	234	41.54	92.3
Total	92,749.7	3,153,365	3,029,748	13,858	14.94	219	32.67	96.1
Commercial								
Class 2:								
Heavy	2.0	424						
Medium	79.3	15,384	13,170	77	97.10	171	166.08	85.6
Light	145.0	22,910	11,120	44	30.34	253	76.69	48.5
Total	266.3	38,718	24,290	121	53.47	201	107.34	62.7
Class 3:								
Heavy	720.4	108,782	43,266	192	26.65	225	60.06	39.8
Medium	1,142.6	129,114	73,442	326	28.53	225	64.28	56.9
Light	749.5	63,710	45,534	215	28.69	212	60.75	71.5
Total	2,612.5	301,606	162,242	733	28.06	221	62.10	53.8
Class 4:								
Heavy	1,095.6	117,229	45,831	263	24.01	174	41.83	39.1
Medium	3,874.8	329,360	194,248	914	23.59	213	50.13	59.0
Light	7,814.2	453,224	342,124	1,624	20.78	211	43.78	75.5
Total	12,784.6	899,813	582,203	2,801	21.91	208	45.54	64.7
Public Automobiles								
Specified	582.2	85,544	33,151	205	35.21	162	56.94	38.8
Earnings	8,111	31,395	39,570	150	1.70	264	4.49	126.0
Mileage	265,667	464,918	195,148	1,036	.004	188	.01	42.0
Garages, Dealers and Manufacturers								
Payroll	180,856	253,143	108,107	439	.24	246	.60	42.7
Specified	111.6	5,236	1,675	7	6.27	239	15.01	32.0
Earnings	968	3,337	2,225	13	1.34	171	2.30	66.7
Miscellaneous Classes—Specified Car Basis								
Total	1,331.7	46,661	37,376	145	10.89	258	28.07	80.1

APPENDIX F

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE
POLICY YEAR 1927

Compiled June, 1928

TOTAL TERRITORY 1B

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
Private Passenger								
W	25,962.0	752,899	544,057	2,138	8.24	254	20.96	72.3
X	21,988.4	813,571	438,205	1,973	8.97	222	19.93	53.9
Y	8,279.3	372,571	212,356	784	9.47	271	25.65	57.0
Total	56,229.7	1,939,041	1,194,618	4,895	8.71	244	21.25	61.6
Commercial								
Class 2:								
Heavy	.7	148	88	1	142.86	88	125.71	59.5
Medium	18.2	3,530	130	2	10.99	65	7.14	3.7
Light	32.3	5,104	957	8	24.77	120	29.63	18.8
Total	51.2	8,782	1,175	11	21.48	107	22.95	13.4
Class 3:								
Heavy	118.9	17,954	8,542	60	50.46	142	71.84	47.6
Medium	242.0	27,347	27,372	80	33.06	342	113.11	100.1
Light	211.6	17,988	4,447	34	16.07	131	21.02	24.7
Total	572.5	63,289	40,361	174	30.39	232	70.50	63.8
Class 4:								
Heavy	242.3	25,925	10,795	31	12.79	348	44.55	41.6
Medium	778.2	66,149	17,028	98	12.59	174	21.88	25.7
Light	2,975.3	172,567	82,669	340	11.43	243	27.79	47.9
Total	3,995.8	264,641	110,492	469	11.74	236	27.65	41.8
Public Automobiles								
Specified	207.8	26,810	9,403	44	21.17	214	45.25	35.1
Earnings	4,028	22,531	27,010	46	1.14	587	6.71	119.9
Mileage	20,044	35,078	10,696	62	.003	173	.01	30.5
Garages, Dealers and Manufacturers								
Payroll	58,227	81,486	36,175	147	.25	246	.62	44.4
Specified	64.4	892	65	1	1.55	65	1.01	7.3
Earnings	454	1,611	225	2	.44	113	.50	14.0
Miscellaneous Classes—Specified Car Basis								
Total	547.7	16,377	8,892	30	5.48	296	16.24	54.3

APPENDIX G

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE

POLICY YEAR 1927

Compiled June, 1928

TOTAL TERRITORY 2A

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
			Private Passenger					
W..........	58,266.2	1,281,854	956,106	4,083	7.01	234	16.41	74.6
X..........	35,391.5	955,575	699,178	3,024	8.54	231	19.76	73.2
Y..........	10,063.0	342,142	251,554	892	8.86	282	25.00	73.5
Total	108,720.7	2,579,571	1,906,838	7,999	7.71	238	18.38	73.9
			Commercial					
Class 2:								
Heavy ...	6.4	659	181	1	15.63	181	28.28	27.5
Medium ..	65.7	6,175	1,530	5	7.61	306	23.29	24.8
Light	76.1	5,859	4,270	23	30.22	186	56.11	72.9
Total	148.2	12,693	5,981	29	19.57	206	40.36	47.1
Class 3:								
Heavy ...	267.5	19,793	12,188	64	23.93	190	45.56	61.6
Medium ..	657.6	36,177	26,066	107	16.27	244	39.64	72.1
Light	577.3	24,244	17,939	82	14.20	219	31.07	74.0
Total	1,502.4	80,214	56,193	253	16.84	222	37.40	70.1
Class 4:								
Heavy ...	438.8	22,816	17,062	62	14.13	275	38.88	74.8
Medium ..	2,579.6	108,342	71,009	259	10.04	274	27.53	65.5
Light	8,967.3	251,084	143,151	683	7.62	210	15.96	57.0
Total	11,985.7	382,242	231,222	1,004	8.38	230	19.29	60.5
			Public Automobiles					
Specified...	579.5	66,291	17,088	101	17.43	169	29.49	25.8
Earnings..	5,302	20,829	22,538	67	1.26	336	4.25	108.2
Mileage....	6,639	9,960	3,512	18	.002	195	.01	35.3
			Garages, Dealers and Manufacturers					
Payroll....	69,548	73,370	61,031	199	.29	307	.88	83.2
Specified...	29.9	925						
Earnings..	561	1,633	72	2	.36	36	.13	4.4
			Miscellaneous Classes—Specified Car Basis					
Total	2,303.9	49,587	35,297	107	4.64	330	15.32	71.2

APPENDIX H

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE

POLICY YEAR 1927

Compiled June, 1928

TOTAL TERRITORY 2B

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
Private Passenger								
W	42,855.7	942,826	598,886	2,411	5.63	248	13.97	63.5
X	28,338.0	765,127	438,269	1,823	6.43	240	15.47	57.3
Y	8,795.1	299,032	205,006	717	8.15	286	23.31	68.6
Total	79,988.8	2,006,985	1,242,161	4,951	6.19	251	15.53	61.9
Commercial								
Class 2:								
Heavy	4.1	422	1,610	2	48.78	805	392.68	381.5
Medium	40.6	3,817	1,910	7	17.24	273	47.04	50.0
Light	71.4	5,500	4,265	7	9.80	605	59.73	77.5
Total	116.1	9,739	7,785	16	13.78	487	67.05	79.9
Class 3:								
Heavy	427.5	31,635	23,506	65	15.20	362	54.98	74.3
Medium	671.0	36,911	20,011	80	11.92	250	29.82	54.2
Light	565.5	23,751	14,057	61	10.79	230	24.86	59.2
Total	1,664.0	92,297	57,574	206	12.38	279	34.60	62.4
Class 4:								
Heavy	494.0	25,687	3,177	27	5.47	118	6.43	12.4
Medium	2,568.0	107,854	54,281	223	8.68	243	21.14	50.3
Light	7,459.6	208,870	119,035	633	8.49	188	15.96	57.0
Total	10,521.6	342,411	176,493	883	8.39	200	16.77	51.5
Public Automobiles								
Specified	386.9	39,344	32,513	82	21.19	397	84.03	82.6
Earnings	5,156	22,742	22,545	61	1.18	370	4.37	99.1
Mileage	21,318	31,979	33,938	133	.01	255	.02	106.1
Garages, Dealers and Manufacturers								
Payroll	47,719	49,683	23,244	127	.27	183	.49	46.8
Specified	57.8	2,350	16	4	6.92	4	.28	.7
Earnings	259	729						
Miscellaneous Classes—Specified Car Basis								
Total	1,637.5	33,601	27,808	76	4.64	366	16.98	82.8

APPENDIX J

MASSACHUSETTS STATUTORY LIABILITY EXPERIENCE
POLICY YEAR 1927

Compiled June, 1928

CLASS	Earned Car Years	Earned Premium	Losses Incurred	No. of Claims	Claim Freq.	Average Claim Cost	Pure Premium	Loss Ratio
Private Passenger								
W..........	84,553.6	1,352,856	769,810	2,927	3.46	263	9.10	56.9
X..........	42,660.9	853,215	593,662	1,989	4.66	298	13.92	69.6
Y..........	11,025.1	275,693	205,619	618	5.61	333	18.65	74.6
Total	138,239.6	2,481,764	1,569,091	5,534	4.00	284	11.35	63.2
Commercial								
Class 2:								
Heavy ...	4.3	254						
Medium ..	50.0	2,701	185	3	6.00	62	3.70	6.8
Light	98.3	4,325						
Total	152.6	7,280	185	3	1.97	62	1.21	2.5
Class 3:								
Heavy ...	287.6	12,081	8,215	30	10.43	274	28.56	68.0
Medium ..	1,009.0	32,279	21,749	98	9.71	222	21.56	67.4
Light	1,041.2	25,001	18,333	62	5.95	296	17.61	73.3
Total	2,337.8	69,361	48,297	190	8.13	254	20.66	69.6
Class 4:								
Heavy ...	412.2	12,366	7,545	20	4.85	377	18.30	61.0
Medium ..	3,138.3	75,316	47,889	169	5.39	283	15.26	63.0
Light	12,816.1	205,055	108,975	417	3.25	261	8.50	53.1
Total	16,366.6	292,737	164,409	606	3.70	271	10.05	56.2
Public Automobiles								
Specified ...	1,239.0	112,247	42,257	166	13.40	255	34.11	37.6
Earnings ..	12,221	36,927	11,072	61	.50	182	.91	30.0
Mileage	2,877	3,599	2,863	11	.004	260	.01	79.5
Garages, Dealers and Manufacturers								
Payroll	79,261	58,884	33,634	118	.15	285	.42	57.1
Specified ...	63.4	1,833	300	1	1.58	300	4.73	16.4
Earnings ..	2,791	7,914	3,480	9	.32	387	1.25	44.0
Miscellaneous Classes—Specified Car Basis								
Total	5,719.2	80,382	43,847	113	1.98	388	7.67	54.5

A SUGGESTED METHOD FOR DEVELOPING AUTOMOBILE RATES

BY

HARMON T. BARBER

The majority of the rates in the automobile casualty manual in effect today were determined by the rate making system which is described in Mr. H. P. Stellwagen's paper on "Automobile Rate Making" in Volume XI of the *Proceedings*. This method has been used with minor variations for the last four years and has produced rates which have proved to be satisfactory as a general rule. Recently there has been evident a growing restiveness as regards automobile manual rates. Several supervisory officials have rejected proposed rates for their states, presumably because they were not convinced of the propriety of the recommended change in manual rates. More recently there has appeared among the carriers a tendency for individual companies to act independently in the matter of introducing various modifications of the rates for individual risks. A brief consideration of the situation hints at a rather general lack of complete confidence on the part of the carriers in the published rates, for otherwise it would be impossible for a few independents to lead the field into a state of rating disorder such as has threatened in the past month or so.

What is wrong with present manual rates? The fact that the present plan for developing automobile rates has been used for several years without material change seems to preclude the possibility of there being any fundamental error in the theory of the method. Possibly there has been too great a lapse of time between rate revisions during a period of rapidly rising loss cost. A succession of minor rate increases might have succeeded in retaining public confidence where a sharp advance after a two year interval failed. It may be that supervisory officials do not look with favor on national rate revisions based on countrywide experience trends without more importance being attached to the indications of local experience. Or the answer to the question may lie in the observation that the rate making method calls for too much reliance on underwriting judgment and an inherent reluctance on the part of others to accept that judgment without adequate supporting statistical evidence. When rates are seriously challenged the weakest links in the chain, as a general rule, prove to be the points which were determined on a more or less judgment basis. It is quite probable that this is the most severe criticism which can be directed at present rates and at the method by which they were developed. Yet in the opinion of some this characteristic is largely responsible for the spirit of disquietude which surrounds current rates.

One remedy for the situation is obvious. The development of a plan for rate making which will reduce the element of judgment to a minimum will do much to settle the automobile casualty situation. With rates which are known to be neither redundant nor inadequate the temptation to depart from standard practice will be largely removed. It was with this idea in mind that there has been developed, through the collaboration of several individuals, a method for determining automobile rates which provides for a substitution of mechanical methods in place of judgment and opinion. It is presented here with the hope that it may prove useful when automobile rate making methods are next undergoing study and revision.

The suggested method, as it will be referred to for purposes of identification, has no official status and has not received the benefit of review and criticism by any regularly constituted rate making committee or authority. It has been submitted to what might be termed a laboratory test by using it in the development of a complete set of private passenger public liability rates. Frequent references to this test will be made to illustrate the description of the method. The results of this study in many instances agreed closely with present manual rates and in other instances showed a considerable difference. A review of the actual experience in the latter instances favored the rate developed by the suggested method.

One feature of the suggested method which possesses considerable merit is the proposal that rates for individual states be based insofar as possible solely on the state's own experience. With a volume of experience available sufficient to produce dependable indications, it seems unnecessary to go beyond the state boundaries for rate making material. This feature should carry considerable weight with supervisory officials in making the resulting rates more acceptable to the public. It will produce rates which are free from the distorting influence of the experience of widely separated though otherwise apparently similar localities. To illustrate the variations in hazard which will be found between two territories of essentially the same density of population and with other physical characteristics not entirely dissimilar, the following private passenger public liability pure premiums by class of car based upon the experience of policy years 1924-1927 inclusive are cited:

Territory	Pure Premiums				Ratio To Average Pure Premium		
	W	X	Y	Average	W	X	Y
Philadelphia....	34.85	40.19	40.97	37.92	.919	1.060	1.080
Chicago........	12.96	15.00	17.68	14.94	.867	1.004	1.183
Minnesota—Remainder of State........	8.52	11.99	17.31	11.48	.742	1.044	1.508
Iowa—Remainder of State........	3.08	6.26	8.53	4.80	.631	1.304	1.777

Each of these territories produced a substantial volume of exposure and it is safe to conclude that the material variation in hazard represented by these figures is actual and is not due to chance. The possibility of improper rate deductions from a combination of data as dissimilar as in these examples is readily apparent even if used only to determine classification relativity. It will be noted that the idea of sectional rate revisions as opposed to a national rate revision has been followed recently in the publication of manual rate changes effective in 1929. This is a desirable change from past practice and should be incorporated in any future plan for calculating automobile rates.

Preliminary to a description of the suggested method of automobile rate making it seems advisable to define and illustrate certain terms which are referred to frequently. The examples cited are taken from a study of private passenger public liability rates based on the National Bureau of Casualty and Surety Underwriters' experience for policy years 1924-1927 inclusive (the last year's experience with 12 months development only).

District—A district is an individual state or group of geographically adjacent states with sufficient experience to warrant the development of rates for all communities within the limits of the district solely on the basis of the experience of the district.

Examples:

District 2—New York State
District 5—Maryland, Delaware, District of Columbia, Virginia and West Virginia
District 14—Washington and Oregon

District Rate-Group—Within each district as defined above there are certain localities with experience which indicates a hazard distinctive from that of other localities. A district rate-group is, therefore, an individual community or territory with a distinctive hazard or a group of such territories exhibiting substantially the same common hazard.

State Rate-Group—In districts composed of more than one state the district rate-groups are subdivided into state rate-groups consisting of all the territories of individual states which are included in the district rate-group. In the event that a district rate-group consists of only one territory, the district rate-group and state rate-group are synonymous.

Examples (in District 5):

District Rate-Group	State Rate-Group	State	Territory (see definition below)
A	A	Md.	Baltimore (03)
B	B1	W. Va.	Wheeling (92), Fairmont and Parkersburg (97) and Various Counties (98)
	B2	Va.	Norfolk (90)
	B3	Del.	Wilmington (57)
	B4	D. C.	District of Columbia (entire)
C	C1	W. Va.	Clarksburg (94) and Various Counties (87)
	C2	Md.	Annapolis, Hagerstown, Frederick (94)
	C3	Va.	Richmond (39)
D	D1	W. Va.	Charlestown (93) and Remainder of State (96)
	D2	Del.	Remainder of State (96)
	D3	Va.	Various Counties (93) Small Cities (94)
	D4	Md.	Various Counties (87) Remainder of State (96)

Territory—A territory is the smallest geographical unit for which past experience has been kept separately. A territory may be an individual city, the suburban towns adjacent to a city, or a group of small cities located within a state and having approximately the same population. It is customary to assign the remainder of a state not included in any other specific territory to a single territory.

Examples (Rhode Island):

Territory Code	Description
30	Providence (See manual for exact definition)
91	Providence Suburban (See manual for exact definition)
94	Newport (Comprises all of Newport County)
96	Remainder of State

Classification—Private passenger cars are classified in the rate manual according to make and model of car. There are three classifications for public liability and property damage coverage denoted by the symbols "W," "X" and "Y."

Proposed Manual Territorial Assignments

Before proceeding to the actual calculation of pure premiums and rates it is first necessary to give consideration to the question of which localities shall be combined for experience purposes and which shall be considered individually. Obviously those territories in the first group will each be assigned the same final rates as indicated by the combined experience while those in the latter group will be rated independently.

(*1*) *Assignment of States to Districts*

The assignment of states to districts should be made with due regard for the practical advantages which result from giving independent consideration to the experience of each individual state. In fact it may prove expedient in certain cases to depart slightly from the restrictions which are imposed by a strict theoretical consideration of the volume of experience necessary for dependable results in order to profit by the independence granted to individual states. The volume of experience available depends directly on the number of policy years experience which is used in the rate calculation. In the present study 3½ years have been used—1924, 1925, 1926 and 1927 (12 mos.)—but with the principle of sectional rate revisions firmly established it will be possible to use more than this number in those districts where it is necessary to augment the volume of experience.

For the purposes of the present study, it was decided to establish sixteen districts covering the entire country with the exception of Massachusetts which requires separate consideration owing to the compulsory insurance law which is in effect in that state. The states of New York, New Jersey, Pennsylvania, Ohio, Illinois and California were each assigned to separate districts while the remaining states were grouped into 10 districts. The assignment to district was made with a view to obtaining an exposure of from 250,000 to 300,000 earned car-years in each district. Consideration was also given to the comparative loss cost level of each state as represented by state average pure premiums by class although this point was not given too much importance, since the suggested method provides for partial recognition of the state's individuality even though it may be one of several states comprising a district. The state assignment to district as used in the present study is shown in Exhibit I. In actual practice it would be advisable to make a permanent assignment of states to districts and to adhere to it unless future developments warrant a change.

(2) *Composition of Rate-Groups*

Since all territories comprising a single rate-group should involve a common distinctive hazard, it is necessary to set up a method for measuring the relative hazard of each territory within a district. Heretofore territories have been grouped for rate making purposes largely on the basis of underwriting judgment supported by the available statistical evidence. As a first attempt in an effort to substitute a purely mechanical plan of assignment, the average pure premium for all classes combined was calculated for each territory. It was recognized, however, that a comparison of average pure premiums on this basis might lead to erroneous conclusions unless consideration was also given to the distribution by class of the number of cars exposed.

This point may be simply illustrated by the following example: Suppose that the individual class pure premiums indicated by the experience of one territory are respectively the same as the class pure premiums of another territory. In the first territory, however, the distribution of cars by class is as follows: W—40%; X—40%; Y—20%; whereas in the second territory the distribution is: W—20%; X—40%; Y—40%. Since the "W" class is the lowest hazard class while the "Y" class is the highest hazard class it is evident that the first territory will show a lower average pure premium than the second territory. For example, if the class pure premiums of both territories were found to be W—$10; X—$20; and Y—$30; the average pure premium of the first territory would be $18 and the average pure premium of the second territory would be $22. Consequently if consideration was to be limited to the comparison of average pure premiums we should erroneously conclude that rates for the first territory should be lower than those for the second, but as a matter of fact the rates should properly be identical.

To eliminate the chance of improper assignment of territories to rate groups because of the effect of the distribution of cars within each territory, the following procedure was adopted. First the three average class pure premiums for the district were calculated. These were then applied to the earned car exposure of the individual territory by class in order to determine the amount of losses which would be expected to develop if the average *district* conditions had prevailed in the individual *territory*. The actual losses of the territory were next divided by this amount of expected losses in order to arrive at a territorial differential which would serve as a measure of relative hazard. The following example illustrates the procedure:

ACTUAL EXPERIENCE

Territory	Class	Cars	Losses	Pure Premium
Territory...........	W	4,000	80,000	20
	X	8,000	240,000	30
	Y	8,000	320,000	40
	Total....	20,000	640,000	32
District.............	W	100,000	1,000,000	10
	X	60,000	1,200,000	20
	Y	40,000	1,200,000	30
	Total....	200,000	3,400,000	17

CALCULATION OF TERRITORY DIFFERENTIAL

Class	Territory Cars	District Pure Premium	Expected Losses	Terr. Actual Losses	Territory Differential
W	4,000	10	40,000		
X	8,000	20	160,000		
Y	8,000	30	240,000		
Total	20,000		440,000	640,000	1.455

It is apparent that a comparison of the territory average WXY pure premium of $32 with the district average WXY pure premium of $17 (producing a ratio of 1.882) would result in an improper measure of the relative hazard of the territory because of the different distributions of cars by class in territory and district. The territorial differential of 1.455 developed as above eliminates the distortion due to class distribution and provides a simple index of territory hazard.

A territorial differential for each territory in the district was similarly calculated and the territories with differentials of approximately the same value were grouped into rate-groups. In the present study, territories with a small volume of experience were assigned to rate-groups not solely on the basis of the differential—but also with consideration for geographical location and in certain instances, where the almost total lack of experience made it necessary, in accordance with the present manual assignment. In actual practice it may prove desirable to eliminate even this small element of judgment by calculating the territorial differential as outlined above and then tempering the indicated departure from district conditions by the application of a credibility factor which is dependent on the number of cars exposed and accident rate of the territory (see later comments on credibility). Such a scheme would provide for the automatic assignment of territories to rate-groups.

In districts composed of more than one state the territories of each state assigned to any district rate-group are segregated into state rate-groups. The Exhibit II attached presents the basis for the selection of rate-groups in District 5—Delaware, Maryland, District of Columbia, Virginia and West Virginia.

It should be noted that the differentials discussed above are used solely for the purpose of rate-group assignment and do not otherwise enter into the calculation of rates.

Determination of Pure Premiums

The calculation of pure premiums by the suggested method may be divided conveniently into several steps which will be described separately.

(1) Calculation of Average WXY Pure Premium for each District Rate-Group

The actual experience of the individual territories comprising the district rate-group was combined without modification since by hypothesis the experience of all territories in the rate-group was homogeneous. The average WXY pure premium for the district rate-group was calculated by dividing the total losses of the rate-group by the total number of earned cars. A similar pure premium was determined for each district rate-group.

(2) Determination of Average WXY Pure Premium for each State Rate-Group

In the case of those districts composed of a single state the district rate-group average WXY pure premium and the state rate-group average WXY pure premium are the same. In the case of other districts composed of two or more states the procedure for determining state rate-group average WXY pure premiums is more involved. It will be remembered that lack of experience was the only reason which prevented assigning each individual state to a separate district and the desirability of preserving as far as possible the individuality of each state's own experience has been stressed. The problem is therefore to adjust the indicated pure premium for the state rate-group by comparison with the pure premium indication of the district rate-group in order to eliminate the effect of an inadequate experience basis in the state rate-group.

It has been previously pointed out that the distribution of cars by classification is one factor which may lead to erroneous results unless corrective measures are taken. The first step in the process of determining a state rate-group pure premium is to obtain a district rate-group pure premium based on the distribution of cars by class of the state rate-group. District rate-group pure premiums by class are figured. These are applied to the actual number of cars by class for the state rate-group. The resulting products are summed and divided by the total number of cars for the state rate-group. The result is a weighted district rate-group pure premium which is comparable with the state rate-group pure premium. An example taken from District 5—Rate-Group D—State Rate-Group D4 (see page 194 for definition) will serve to illustrate this process:

Class	Cars	Losses	Pure Premium	District Rate-Group D Pure Premium	Product of Cars × Dist. Pure Premiums	Weighted Dist. Rate-Group Pure Premium
W	9,912.7	51,688	5.21	5.67	58,188	
X	7,515.2	47,469	6.32	9.32	70,042	$\frac{157{,}916}{19{,}922.5} = 7.93$
Y	2,494.6	25,791	10.33	11.90	29,686	
Total	19,922.5	124,948	6.27		157,916	

In this example the state rate-group WXY pure premium based on actual experience is 6.27. The corresponding district rate-group WXY pure premium adjusted to the state rate-group distribution of cars by class is 7.93. It remains to determine an adjusted state rate-group pure premium which will reflect as far as possible the state experience but which will give due weight to the district indications which are based on a dependable volume of experience.

To determine the amount of credibility which may be attached to the state rate-group experience the credibility table described in Appendix A is consulted. This table shows the percent of credibility which may be assigned to a specific volume of experience depending on the number of cars exposed and the claim rate per 100 cars. In the consideration of credibility in connection with the previous automobile rate making method the element of claim rate was not considered of sufficient importance to warrant varying the credibility for different claim rates and there was used a single table based on the countrywide average claim rate of five per 100 cars. As a matter of fact the exposure necessary for 100% credibility varies practically inversely with the claim rate and owing to the extreme variation in the claim rate for various localities it was considered essential in connection with the suggested method to erect a series of credibility tables as is explained in Appendix A.

In the example cited the state rate-group experience shows 449 claims with an exposure of 19,922.5 earned cars or a claim rate of 2.26 per 100 cars. This exposure and claim rate warrant a credibility factor of .44 as will be evident by reference to the credibility table.

With this information it is possible to proceed with the determination of the adjusted state rate-group WXY pure premium. The method consists of determining a weighted average of the state rate-group and district rate-group pure premiums, assigning a weight corresponding to the credibility factor to the state rate-group indication and the complement of the credibility factor to the district rate-group pure premium. This step has parallels in compensation insurance rate making and also in the previous automobile rate making method, although in the latter case this operation is not performed at this stage of the rate calculation.

Continuing with the example, the adjusted state rate-group WXY pure premium is determined as follows:

State rate-group pure premium × Credibility factor
+ District rate-group pure premium × (1 − Credibility factor)
= Adjusted state rate-group pure premium

$$6.27 \times .44 + 7.93\ (1 - .44) = 7.20$$

The adjusted state rate-group WXY pure premium is found to be 7.20 in this instance. Proceeding in this manner adjusted pure premiums were established for each state rate-group in each district.

It will be noted in those cases where the exposure and claim rate of the state rate-group are sufficient to warrant 100% weight being given to the average pure premium of the state rate-group that the district rate-group pure premium will have no effect in the determination of the final average pure premium for the state rate-group and that the indicated and adjusted state rate-group pure premiums are identical. Also as the volume of exposure of the state rate-group approaches the requirements for 100% credibility the influence of the district rate-group experience is minimized.

(3) Calculation of Preliminary Class Pure Premiums

Class pure premiums (i. e. W, X and Y pure premiums) were derived from the adjusted state rate-group WXY pure premium by the use of class differentials, which are the ratios of the individual class pure premiums to the average combined WXY pure premium. The class differentials were based upon the experience of the district rate-group. In certain instances where there was insufficient volume in a single district rate-group to produce reliable results the differentials were based upon a combination of two or more district rate-groups located, of course, within the same district.

In the study which was made of class differentials it was observed that in densely populated areas the average WXY pure premium is very close to the X class pure premium and the spread between the W and Y class pure premiums is comparatively small, while in rural communities the average WXY pure premium is usually considerably less than the X class pure premium and the range between the W and Y pure premiums is comparatively great. Since in most districts the large centers of population show high pure premiums and the rural areas show low pure premiums, it is to be expected that the higher the average pure premium the smaller is the variation in class differentials, and conversely, the lower the pure premium the greater is the spread in class differentials. This observation is helpful in pointing out that where the combination of district rate-groups is necessary because of an inadequate experience volume, such combination should be restricted to include only those district rate-groups of about the same average pure premium.

To illustrate, the class differentials obtained by dividing the district rate-group individual class pure premiums by the average WXY pure premium for District 5 are as follows:

District Rate-Group	Indicated Class Differentials		
	W	X	Y
A	.909	1.063	1.118
B	.800	1.086	1.293
C	.866	1.089	1.177
D	.736	1.168	1.491

The difference in character of the class differentials for Rate-Group A—Baltimore and those for Rate-Group D, which is composed principally of rural territories, bears out the observations expressed above. It was found that the exposure of the Y class in Rate-Group C was less than 9,000 cars—an insufficient volume for dependable results. If the Y pure premium for Rate-Group C had been higher than it actually developed to be it will be apparent that the average pure premium for this rate-group would be higher and the class differentials would then appear to be more in keeping with those indicated for the adjacent rate-groups B and D. Because of this lack of volume in Class Y for Rate-Group C it was deemed advisable to combine rate-groups B and C for the purpose of obtaining a single set of class differentials applicable to both. The combination was effected by weighting the differentials shown above separately by class by the relative exposure in each rate-group. The resulting differentials which were adopted for the purpose of the present study therefore became:

Rate-Group	W	X	Y
A	.909	1.063	1.118
B & C	.827	1.087	1.258
D	.736	1.168	1.491

As stated previously the class differentials based on district rate-group experience were applied to the state rate-group adjusted WXY pure premiums to obtain preliminary class pure premiums. These pure premiums are termed preliminary because of the necessity for a further minor adjustment as explained in the description of the next step.

(4) Calculation of Final Class Pure Premiums

In order to conform to the principle that rates for each state should be based upon the individual state's own experience insofar as possible, the preliminary class pure premiums for states with a sufficient exposure (approximately 50,000 earned cars or more) have been uniformly adjusted upward or downward, so that the products of exposure times pure premium will exactly reproduce the actual losses used in the calculation of pure premiums. The correction factor which is applied to the preliminary class pure premiums is the ratio of the total actual losses for the state to the total of the products of exposure and preliminary class pure premiums. The state balance sheet for Maryland is attached as Exhibit III and illustrates the calculation of the correction factor and the manner in which final class pure premiums are obtained from the preliminary class pure premiums. In practically every state the correction or adjustment was found to be very small. For those states whose experience is insufficient in volume to justify this correction the preliminary pure premiums were accepted as final.

It may be well to summarize the various steps in the suggested method as described up to this point.

(1) *Assignment of States to Districts*—States with sufficient experience constitute individual rate making districts. Combinations of other states are made on the basis of geographical location.

(2) *Determination of Rate-Groups within Districts*—Statistical territories are combined into rate-groups on the basis of territorial differentials.

(3) *Calculation of Average WXY District Rate-Group Pure Premiums*—These are the actual average pure premiums for each district rate-group.

(4) *Determination of Adjusted State Rate-Group WXY Pure Premiums*—In districts composed of more than one state the state rate-group actual WXY pure premium and the district rate-group WXY pure premium are averaged using a weight equivalent to the credibility factor on the state experience and a weight of one minus the credibility factor applied to the district experience.

(5) *Calculation of State Rate-Group Class Pure Premiums*—These are computed by applying the district rate-group class differentials to the state rate-group adjusted WXY pure premiums.

(6) *Adjustment of State Rate-Group Class Pure Premiums*—The state rate-group class pure premiums are adjusted uniformly upward or downward in order to balance with the actual losses for the state.

The Determination of Rate Level

At this stage in the development of rates there is available a complete set of pure premiums representing the proper relativity according to both class of car and territorial location. The next step is to adjust this system of pure premiums to conform to current conditions or rather to conditions that may be expected to prevail in the near future when the revised rates are to be in effect.

Before continuing with the description of the method followed in the present study a brief review of certain features of automobile underwriting may assist in obtaining a better perspective of the problem of rate level.

The automobile public liability and property damage lines of insurance are susceptible to rapidly changing conditions which have a material influence on loss cost and which may make experience of a few years ago obsolete as far as being useful as a guide in establishing rate level. To name a few of these factors which have a tendency to increase the insurance cost, there is the increased traffic congestion on the highways resulting from a greater number of cars in use and an increased annual mileage per car, the construction and better maintenance of improved roads which have stimulated the desire for more speed and have made possible all-year driving in northern states, the production of cars which are capable of greater speed, and the increased liberality of courts and juries as evidenced by the "guest liability" decisions and higher damage awards of recent years. Among the factors which have been influential in holding down insurance costs are the ambulance chasing investigations which have done much to eliminate non-meritorious claims at least temporarily; public safety movements and campaigns; increased and improved traffic control by progressive police authorities; financial responsibility laws; and improved mechanical equipment of cars such as four wheel brakes, etc. The instability of these conditions and their varying influence in different sections of the country point to the necessity of using only the most recent experience available and of establishing rate levels at least by district and preferably by state.

The wisdom of adopting a permanent and standard method of establishing rate levels is too obvious to require elaboration but the question of the fundamentals of such a method is controversial and resolves itself into a matter of opinion. Undoubtedly there are many advocates of a method which would employ the average of the latest three or five policy years' experience as a key to the level of rates. It is the contention of these that such a basis is definite and that over a period of years' premiums collected would be adequate but not redundant. However, this would be true only in the event that automobile insurance costs were cyclical in trend with comparatively short periods. During a sustained period of increasing costs or decreasing costs, rates produced under such a plan would be either consistently inadequate or consistently redundant. Furthermore, a plan of this nature which may prove practical in a closely regulated line such as compensation insurance, is likely to prove untenable in a highly competitive line such as automobile insurance. The public is quick to demand a decrease in rate if one appears warranted and it is a matter of good business to immediately reward and thus encourage civic movements which will tend to reduce loss costs such as have recently occurred in Schenectady and Youngstown. If the public is insistent on early recognition of favorable changes in cost, and if certain carriers show a willingness to depart from manual rates which may possess stability though may not be in exact accord with current costs, it seems imperative and desirable to adopt a method for determining rate level which will be responsive to the indications of the most recent experience available, regardless of whether its trend is upward or downward.

The use of the experience of the latest policy year or of the two most recent policy years as the basis for rate level will meet this requirement of responsiveness. It may appear advisable in some instances where there has been a continued trend either upward or downward in the cost level to anticipate the probable development during the period subsequent to the latest year for which complete experience is available and to adjust the rate level to conform with the expected level of cost during the year that the revised rates are to be operative. The principal objection to a plan for utilizing the latest policy year as an index of rate level is the immaturity of the experience which under present procedure for reporting experience is only 12 months developed. As a matter of fact the defect of immaturity is not limited to the last year but is a material factor in the experience of earlier years which is commonly assumed to be practically completely developed as reported at the end of 24 months.

In the present study of automobile rates consideration was given to both of the alternatives of (a) keying rates to the experience level of 1927 policy year and (b) using the experience of 1926-27 policy years combined. The mechanics of adjusting the pure premiums based on the four years of experience to either level are comparatively simple and will be similar regardless of the basis ultimately adopted for rate level.

(1) Determination of the Earned Factors for the Latest Policy Year

Since it is of great importance that the experience of the latest policy year be utilized on as accurate a basis as it is possible to obtain, considerable study was devoted to the matter of calculating appropriate earned factors for individual states to be used in converting the written exposure of the latest policy year to an earned basis. The earned factors as used in the past and as used in the present study not only represent that proportion of exposure written during the first twelve months which is earned during the first twelve months of the policy year but they also reflect the expected development of incurred losses from their status at 12 months to an ultimate basis. Consequently, the determination of the earned factors was undertaken in two parts, (a) the exposure element which was computed on a state basis and (b) the development of losses element which was computed on a countrywide basis. The exposure element was calculated by preparing a tabulation of the private passenger exposure of a large individual carrier for policy year 1926 at the end of 12 months showing by state the total exposure divided by months exposed during the first calendar year and during the second calendar year of the policy year. The ratio of the first calendar year's exposure to the total written exposure for each state was accepted as the basis for the earned factor. In the case of states with small exposure it was necessary to combine adjacent states. The results of this study were substantiated by a subsequent similar calculation using policy year 1927 at the end of 12 months of development which showed only minor variations from the original. The state exposure ratios varied from less than .50 in some southern states up to .68 in northern New England, reflecting the effect of seasonal driving and automatic suspensions. The countrywide average was .557. See Exhibit IV attached.

The available data having a bearing on the development of losses were not as complete nor as detailed as might be desired. There were no reliable figures by state or section of the country which dealt with the development of private passenger liability losses. The following figures, which were taken from a series of tabulations of National Bureau calls for loss ratio experience, present the countrywide automobile public liability loss ratios of all reporting companies at various stages of development. It seems logical to infer that the development of private passenger losses will not be far different from these figures since the private passenger type of coverage, which predominates in point of volume, is included in these figures and there is little reason to suspect a marked difference in the development of automobile public liability experience by type of coverage.

NATIONAL BUREAU LOSS RATIOS
Automobile Public Liability

At End of	Policy Years				
	1922	1923	1924	1925	1926
12 months	....	....	.449	.454	.509
24 months	....	.486	.487	.505	.544
36 months	.476	.512	.515	.540	
48 months	.489	.521	.531		
60 months	.490	.526			

By comparing the loss ratios for each policy year at successive reports with the loss ratio of the preceding report the following development factors were obtained:

Period	Policy Years 1922	1923	1924	1925	1926	Selected Average
12 to 24 months......	.....	.....	1.085	1.112	1.069	1.08
24 to 36 months......	.....	1.053	1.057	1.069	.....	1.06
36 to 48 months......	1.027	1.018	1.031	.....	.....	1.02
48 to 60 months......	1.002	1.010	.....	.....	.....	1.01
Total 12 to 60 months..................................						1.18
Total 24 to 60 months..................................						1.09

These figures indicate that there is an adverse development in losses as reported at the end of 12 months which requires a loading of approximately 1.18 (the product of the average development factors shown above) in order to adjust the 12 months' experience to an ultimate cost level. The state exposure factors previously figured were therefore divided by this development factor in order to obtain proper earned factors to apply by state to the 1927 policy year exposure. The average countrywide exposure factor of .557 when modified in this way indicates an average countrywide earned factor of .472. In the development of adjusted pure premiums as previously described it was not considered essential to use individual state earned factors on the written exposure of policy year 1927 because the preponderance of the experience of the other years made this refinement unnecessary and therefore an earned factor of .47 was used on the 1927 written exposure of each state. In dealing with rate level the importance attached to the latest year's experience requires the use of an accurately determined individual earned factor for each state as has just been described. Note that the preceding exhibit also indicates that losses reported at the end of 24 months require a loading factor of 1.09 to adjust them to an ultimate cost level. With this information available it was possible to proceed with the determination of rate level.

(2) Calculation of Indicated Necessary Change in Manual Rates

Proceeding on the hypothesis that rates were to be keyed to the experience indications of the latest policy year, 1927, the written exposure of this year for the district was modified by the application of the state earned factors previously derived. The current manual rates were next applied to this exposure by territory and by class to obtain the total premium at current manual rates for the district. This premium was next adjusted to exclude the provision for expenses by multiplying by the expected loss ratio of the manual rates, namely .545. The actual incurred losses for the district for 1927 policy year were then divided by this amount of expected losses to obtain a ratio which represented the indicated necessary change in manual rates for the district.

To determine the indicated rate change on the basis of the two latest years' experience, the 1926 policy year exposure was added to the 1927 earned exposure before applying current manual rates. The actual 1926 incurred losses were increased by the factor 1.09 to place them on an ultimate cost level before combining them with the 1927 actual losses. This separate step was necessary to place the 1926 losses on a comparable basis with those of 1927, the loss development factor for 1927 having been incorporated in the earned factor for that year. The combined losses for 1926 and 1927 were then divided by the expected losses of the premium at manual rates for the two years to obtain the indicated change in manual rates.

In districts composed of two or more states, the indicated rate change based on each state's own experience was determined, as well as the district indication. A weighted combination of state and district indications using the standard credibility table was then calculated to obtain the indicated rate change for each state included in the district.

(3) Transition from Adjusted Class Pure Premiums to Proposed Rates

It will be recalled that the pure premium calculations previously described terminated with a complete set of class pure premiums by territory based upon the experience of the period 1924-1927 policy years inclusive. To determine how much these pure premiums differed from the pure premiums of current manual rates the exposure of the four year period by class and by territory was multiplied (a) by the new adjusted pure premiums and (b) by current manual rates. The total premium by state resulting from the second calculation was reduced to expected losses by multiplying by the expected loss ratio of the manual rates of .545 and the result was divided by the expected losses obtained by the first calculation. This ratio provided a measure of the departure of current manual rate pure premiums from the new adjusted pure premiums by state.

In the previous section was described the procedure for determining the necessary change in current manual rates by state. The product of these two factors (a) the departure of current manual rate pure premiums from the new adjusted pure premiums and (b) the necessary change in current manual rate level represents a multiplier which when applied to the adopted pure premiums places them on the proposed level of rates. By loading these pure premiums by the necessary percentage for expenses the final rates are obtained.

In the preceding discussion of rate level the question of whether to use the latest policy year's experience or that of the two most recent policy years was purposely left open. It is confidently expected, if a standard method for developing rates by an automatic process such as has just been described, should be adopted and placed in operation, that the interval between the time the latest experience was reported and the date when revised rates became effective would be materially decreased. For instance if the experience on the latest policy year was first reported at the end of 18 months (July 1st) instead of at the end of 12 months (December 31st) it may be practical to issue new rates in time to be effective on the succeeding March 1st. Under such a procedure the experience of the latest year would undoubtedly be sufficiently mature and in considerable volume to make it entirely acceptable as the guide for the rate level of the revised rates. The advantages of such a proposition over the present system which calls for committee deliberations at an early stage in the revision are readily apparent. This suggestion is merely noted at this time since it is evident that there are numerous practical considerations to such a proposal which should influence the ultimate decision as to its merits.

This description of the suggested method for developing automobile rates has dealt with its application in the calculation of private passenger public liability rates. It will be evident how the same method may be applied to the calculation of rates for other types of liability coverage and also to the property damage and collision lines. No claim is made that this plan represents the ultimate ideal plan for developing automobile rates. It does possess certain outstanding advantages over the pre-existing rate making method, namely the substitution of exact formula methods for underwriting judgment, the idea of sectional rate revisions, and a more precise use of statistical data as regards credibility and rate level. If the foregoing description and discussion can assist in the evolution of a standard and permanent method for developing automobile rates the purpose of this paper will be fulfilled.

APPENDIX A

CREDIBILITY TABLES—DERIVATION AND APPLICATION

The question of what constitutes a dependable volume of automobile experience is treated rather briefly in Mr. Stellwagen's paper on "Automobile Rate Making" (*Proceedings*, Volume XI, p. 284-5), in which the author makes an adaptation of the conclusions reached by Mr. A. H. Mowbray in the consideration of a similar question with regard to compensation experience (*Proceedings*, Volume I, p. 26). Whereas in Mr. Stellwagen's paper it appears as though insufficient consideration was given to the possible variation in the amount of individual claims, there is a more serious criticism which may be directed at the practical application of the credibility table which was derived as a result of his observations. The statement is made that an exposure of 50,000 cars is sufficient to base rates upon, or in other words that it may be assumed that the credibility for this number of cars is unity. This is true for a volume of experience which has developed a claim rate per 100 cars of 5 but with some territories showing a claim rate as low as 2 and others as high as 20 per 100 cars it seems imperative to give some recognition to this element as well as to the number of cars exposed. To illustrate the importance of claim rate the number of cars required for 100% credibility with a claim rate of .02 is 129,850 and with a claim rate of .20 is 10,600, both of these numbers being determined in the same manner as the 50,000 exposure for a claim rate of .05.

Accordingly in the development of the suggested method for making automobile rates it was decided to construct a series of credibility tables, one for each of a number of different claim rates. The tables which are attached as Exhibit V were computed in the following manner.

To determine the exposure necessary for 100% credibility for different claim rates the following formula appearing on page 284, Volume XI, *Proceedings*, was employed:

$$P=\frac{2}{\sqrt{\pi}}\int_0^{hsn} e^{-t^2}\,dt$$

$$\text{where } h=\frac{1}{\sqrt{2pqn}}$$

Referring to the table of values in Bowley's "Elements of Statistics," p. 281, it will be found that

$$\text{for } P=f\,(hsn)=.99, \text{ the value } hsn\ =\ 1.82$$

$$\text{that is } \frac{sn}{\sqrt{2pqn}}=1.82$$

When the limit of variation is taken as 5% the value of s becomes .05p.

$$\text{Therefore } \frac{.05pn}{\sqrt{2pqn}}=1.82$$

$$\frac{.0025p^2n^2}{2pqn}=3.3124$$

$$.0025\,pn=6.6248q$$

$$n=2650\,q/p$$

Interpreting this expression as applied to the present problem it may be stated that the number of cars (n) required to assure that the resulting actual number of claims will be, in 99 times out of a 100, within 5% of the true average or expected number of claims, is equivalent to the product of 2650 and the ratio of one minus the claim rate to the claim rate. By applying this formula the following results were obtained:

Claim Rate (p)	Number of Cars For 100% Credibility (n)	Claim Rate (p)	Number of Cars For 100% Credibility (n)
.020	129,850	.080	30,475
.025	103,350	.090	26,794
.030	85,683	.100	23,850
.035	73,064	.110	21,441
.040	63,600	.120	19,433
.045	56,239	.130	17,738
.050	50,350	.140	16,279
.055	45,532	.150	15,020
.060	41,517	.160	13,913
.065	38,119	.180	12,072
.070	35,207	.200	10,600
.075	32,683		

To obtain the number of cars for credibility values (Z) of less than 100%, it was assumed that the credibility varied in proportion to the square root of the number of cars or that $Z=c\sqrt{n}$. The value of "c" depends of course on the number of cars required for 100% credibility and is constant for each individual claim rate. This procedure is identical with that used to determine the credibility factors of less than 100% in connection with the previous automobile rate making method. As stated previously the resulting tables are shown in Exhibit V attached.

It will be noted that the suggested method provides for the use of the credibility factors in connection with the determination of state rate-group pure premiums. As pointed out previously the state rate-group WXY pure premium is multiplied by the credibility factor and the product is added to the product of the district rate-group WXY pure premium and unity minus the credibility factor. The result is the adjusted WXY pure premium for the state rate-group. The similarity of this process to the present compensation experience rating method will be apparent to those who are familiar with the mechanical operations of experience rating. The suggested method also provides for the use of credibility in determining state rate levels where the volume of state experience is insufficient by itself and district experience must be relied upon to make up the deficiency. In each of these instances the comparison or experience rating is made between experiences which are nearly homogeneous. In the case of the previous automobile rate making method the experience rating has been theoretically weak in that the comparison has been made between the newly developed indicated rates and the existing manual rates, which were established by two independent calculations using different basic data. The expectation of similarity of results is far less in the latter case and it may be assumed that the experience rating operation was performed simply as a means of smoothing out unusual and abrupt rate changes. In other words the experience rating process in the past has been used to promote stability in final rates; it is employed in the suggested method to strengthen the experience indications of an inadequate volume.

EXHIBIT I

ASSIGNMENT OF STATES TO DISTRICTS

District Number	STATES	Number of Earned Cars*
0	Maine	54,834
	Vermont	33,874
	New Hampshire	56,304
	Total	145,012
1	Connecticut	266,584
	Rhode Island	54,242
	Total	320,826
2	New York	1,180,701
3	Pennsylvania	621,877
4	New Jersey	466,179
5	Maryland	104,902
	Delaware	9,401
	District of Columbia	55,724
	West Virginia	78,649
	Virginia	99,607
	Total	348,283
6	North Carolina	86,551
	South Carolina	26,082
	Georgia	74,349
	Florida	101,890
	Alabama	52,604
	Total	341,476
7	Mississippi	32,541
	Oklahoma	46,374
	Arkansas	30,377
	Louisiana	58,251
	Texas	100,615
	Total	268,158

EXHIBIT I (Cont.)

District Number	STATES	Number of Earned Cars*
8	Indiana	102,082
	Kentucky	79,080
	Tennessee	122,031
	Total	303,193
9	Ohio	407,265
10	Illinois	395,061
11	Michigan	158,656
	Minnesota	176,942
	Wisconsin	247,915
	Total	583,513
12	Missouri	173,057
	Iowa	105,164
	Nebraska	54,574
	Kansas	47,983
	North Dakota	14,763
	South Dakota	10,435
	Total	405,976
13	Wyoming	3,696
	Nevada	2,947
	Utah	12,397
	Colorado	41,890
	Arizona	12,697
	New Mexico	6,122
	Montana	19,099
	Idaho	11,668
	Total	110,516
14	Washington	117,269
	Oregon	64,027
	Total	181,296
15	California	710,126

*National Bureau—Auto P. L. Experience—Private Passenger Cars Policy Years 1924-27 inclusive.

EXHIBIT II

ASSIGNMENT OF TERRITORIES TO RATE-GROUPS

District 5—Delaware, Maryland, District of Columbia, Virginia and West Virginia

State	Territory	Code	Number of Cars	Differential	Rate-Group Assignment
W. Va.	Wheeling............. ..	92	1,536	1.469	B1
Md.	Baltimore................	03	75,990	1.405	A1
W. Va.	Fairmont, Parkersburg....	97	2,111	1.327	B1
Va.	Norfolk..................	90	17,142	1.210	B2
W. Va.	Various Counties.........	98	1,667	1.093	B1
Del.	Wilmington..............	57	7,664	1.012	B3
D. C.	Washington	..	55,724	.996	B4
W. Va.	Clarksburg..............	94	24,939	.979	C1
W. Va.	Various Counties.........	87	1,043	.954	C1
Md.	Small Cities..............	94	8,990	.918	C2
Va.	Richmond...............	39	23,443	.874	C3
Del.	Remainder of State.......	96	1,736	.873	D1
W. Va.	Remainder of State.......	96	36,682	.795	D2
W. Va.	Charleston..............	93	10,671	.788	D2
Va.	Various Counties.........	93	1,236	.762	D3
Va.	Remainder of State.......	96	37,946	.699	D3
Va.	Small Cities..............	94	19,840	.624	D3
Md.	Remainder of State.......	96	19,205	.594	D4
Md.	Various Counties.........	87	718	.575	D4

EXHIBIT III

STATE BALANCE SHEET

Maryland

Auto P.L. P.P. Rates
N.B. 1924–27 Experience

	Number of Cars	Actual Losses	Actual P. P.	Preliminary Adj. P. P.	Preliminary Expected Losses	Final Adj. P. P.	Final Expected Losses
A-1	Baltimore						
W	35,734.9	489,027	13.68	13.68	488,853	13.49	482,064
X	28,835.9	461,400	16.00	16.00	461,374	15.78	455,031
Y	11,419.2	192,973	16.83	16.83	192,185	16.59	189,445
Total	75,990.0	1,143,400	15.05	15.05	1,142,412	14.82	1,126,540
C-2	Md. 94						
W	3,115.2	21,897	7.03	8.48	26,417	8.36	26,043
X	4,205.3	38,015	9.04	11.14	46,847	10.98	46,174
Y	1,669.3	32,139	19.25	12.89	21,517	12.71	21,217
Total	8,989.8	92,051	10.24	10.25	94,781	10.39	93,434
D-4	Md. 96–	87					
W	9,912.7	51,688	5.21	5.30	52,537	5.23	51,843
X	7,515.2	47,469	6.32	8.41	63,203	8.29	62,301
Y	2,494.6	25,791	10.33	10.74	26,792	10.59	26,418
Total	19,922.5	124,948	6.27	7.20	142,532	7.06	140,562
State Total	104,902.3	1,360,399	12.97		1,379,725	Correction .986	1,360,536

EXHIBIT IV

PROPORTION OF WRITTEN EXPOSURE WHICH IS EARNED DURING FIRST TWELVE MONTHS OF THE POLICY YEAR

Based on the 1926 Policy Year Experience of One Carrier for Individual States and Groups of Adjacent States.

Alabama	.51	Nevada	.52
Arizona	.52	New Hampshire	.61
Arkansas	.51	New Jersey	.54
California	.52	New Mexico	.52
Colorado	.52	New York City	.55
Connecticut	.60	New York State (exclusive N. Y. C.)	.60
Delaware	.54	North Carolina	.51
District of Columbia	.54	North Dakota	.58
Florida	.51	Ohio	.53
Georgia	.51	Oklahoma	.51
Idaho	.52	Oregon	.54
Illinois	.53	Pennsylvania	.54
Indiana	.53	Rhode Island	.56
Iowa	.53	South Carolina	.51
Kansas	.53	South Dakota	.58
Kentucky	.51	Tennessee	.51
Louisiana	.51	Texas	.51
Maine	.66	Utah	.52
Maryland	.54	Vermont	.68
Michigan	.56	Virginia	.51
Minnesota	.61	Washington	.53
Mississippi	.51	West Virginia	.53
Missouri	.53	Wisconsin	.58
Montana	.52	Wyoming	.52
Nebraska	.53	Countrywide	.557

EXHIBIT V

AUTOMOBILE CREDIBILITY TABLE

Number of Cars Under Different Accident Rates for Each Value of Z.

Z In Per Cent.	Number of Accidents per 100 Cars Exposed																
	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	9	10	11	12
1	13	10	9	7	6	6	5	5	4	4	3	3	3	3	2	2	2
2	52	41	34	29	25	22	20	18	17	15	14	13	12	11	9	9	8
3	116	92	77	65	57	50	45	41	37	34	31	29	27	24	21	19	17
4	206	164	136	116	101	89	80	72	66	61	56	52	48	43	38	34	31
5	322	257	213	181	158	140	125	113	103	95	87	81	76	67	59	53	48
6	438	349	289	247	215	190	170	154	140	129	119	110	103	90	81	72	66
7	632	503	417	355	309	274	245	221	202	185	171	159	148	130	116	104	95
8	799	636	528	450	392	346	310	280	256	235	217	201	188	165	147	132	120
9	1,044	831	689	588	512	452	405	366	334	307	283	263	245	215	192	173	156
10	1,290	1,027	851	726	632	559	500	452	413	379	350	325	303	266	237	213	193
11	1,560	1,242	1,030	878	764	676	605	547	499	458	423	393	366	322	287	258	234
12	1,857	1,478	1,225	1,045	909	804	720	651	594	545	503	467	436	383	341	307	278
13	2,179	1,735	1,438	1,226	1,067	944	845	764	697	640	591	548	511	450	401	360	326
14	2,527	2,012	1,668	1,422	1,238	1,095	980	886	809	742	685	636	593	521	465	417	378
15	2,901	2,310	1,915	1,632	1,421	1,257	1,125	1,017	928	852	786	730	681	599	533	479	434
16	3,301	2,628	2,179	1,857	1,617	1,430	1,280	1,157	1,056	969	895	831	774	681	607	545	494
17	3,727	2,967	2,459	2,097	1,825	1,614	1,445	1,306	1,192	1,094	1,010	938	874	769	685	616	558
18	4,178	3,326	2,757	2,351	2,046	1,809	1,620	1,464	1,337	1,226	1,132	1,051	980	862	768	690	625
19	4,655	3,706	3,072	2,619	2,280	2,016	1,805	1,632	1,489	1,366	1,262	1,171	1,092	960	856	769	697
20	5,158	4,106	3,404	2,902	2,526	2,234	2,000	1,808	1,650	1,514	1,398	1,298	1,210	1,064	958	852	772
21	5,687	4,527	3,753	3,199	2,785	2,463	2,205	1,993	1,819	1,669	1,541	1,431	1,334	1,173	1,045	939	851
22	6,241	4,968	4,119	3,511	3,056	2,703	2,420	2,188	1,997	1,832	1,692	1,571	1,464	1,287	1,147	1,031	934
23	6,821	5,430	4,502	3,838	3,341	2,954	2,645	2,391	2,182	2,002	1,849	1,717	1,600	1,407	1,254	1,127	1,021
24	7,428	5,913	4,902	4,179	3,637	3,217	2,880	2,604	2,376	2,180	2,013	1,869	1,742	1,532	1,365	1,227	1,112
25	8,059	6,416	5,319	4,534	3,947	3,491	3,125	2,825	2,578	2,366	2,184	2,028	1,891	1,663	1,481	1,331	1,206

EXHIBIT V (Cont.)

AUTOMOBILE CREDIBILITY TABLE

Number of Cars Under Different Accident Rates for Each Value of Z.

Number of Accidents per 100 Cars Exposed

Z In Per Cent.	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	9	10	11	12
26	8,717	6,939	5,753	4,904	4,269	3,775	3,380	3,056	2,789	2,559	2,363	2,194	2,045	1,798	1,602	1,440	1,305
27	9,400	7,483	6,204	5,289	4,604	4,071	3,645	3,295	3,007	2,759	2,548	2,366	2,205	1,939	1,728	1,553	1,407
28	10,110	8,048	6,672	5,688	4,951	4,379	3,920	3,544	3,234	2,967	2,740	2,544	2,372	2,085	1,858	1,670	1,513
29	10,845	8,633	7,157	6,101	5,311	4,697	4,205	3,801	3,469	3,183	2,939	2,729	2,544	2,237	1,993	1,791	1,623
30	11,631	9,259	7,676	6,544	5,696	5,038	4,510	4,077	3,721	3,414	3,152	2,927	2,729	2,399	2,138	1,921	1,741
31	12,418	9,885	8,195	6,987	6,081	5,378	4,805	4,353	3,972	3,645	3,366	3,125	2,913	2,562	2,282	2,051	1,859
32	13,204	10,511	8,714	7,429	6,467	5,719	5,120	4,628	4,224	3,876	3,579	3,323	3,098	2,724	2,427	2,181	1,976
33	14,043	11,179	9,267	7,901	6,877	6,082	5,445	4,922	4,492	4,122	3,806	3,534	3,294	2,897	2,581	2,320	2,102
34	14,907	11,866	9,838	8,387	7,300	6,456	5,780	5,225	4,769	4,375	4,040	3,751	3,497	3,075	2,740	2,462	2,231
35	15,796	12,575	10,425	8,887	7,736	6,842	6,125	5,537	5,053	4,637	4,281	3,975	3,706	3,259	2,903	2,609	2,364
36	16,712	13,303	11,029	9,402	8,184	7,238	6,480	5,858	5,346	4,905	4,530	4,206	3,920	3,447	3,072	2,760	2,501
37	17,653	14,053	11,650	9,932	8,645	7,646	6,845	6,188	5,647	5,182	4,785	4,442	4,141	3,642	3,245	2,916	2,642
38	18,620	14,823	12,288	10,476	9,119	8,065	7,220	6,527	5,957	5,466	5,047	4,686	4,368	3,841	3,422	3,076	2,787
39	19,613	15,613	12,944	11,035	9,605	8,495	7,605	6,875	6,274	5,757	5,316	4,936	4,601	4,046	3,605	3,240	2,936
40	20,632	16,424	13,616	11,608	10,104	8,936	8,000	7,232	6,600	6,056	5,592	5,172	4,840	4,256	3,792	3,308	3,088
41	21,676	17,255	14,305	12,196	10,616	9,388	8,405	7,598	6,934	6,363	5,875	5,455	5,085	4,471	3,984	3,581	3,244
42	22,747	18,107	15,012	12,798	11,140	9,852	8,820	7,973	7,277	6,677	6,165	5,724	5,336	4,692	4,181	3,757	3,405
43	23,843	18,980	15,735	13,414	11,676	10,327	9,245	8,357	7,627	6,998	6,462	6,000	5,593	4,918	4,382	3,938	3,569
44	24,939	19,853	16,458	14,031	12,213	10,801	9,670	8,742	7,978	7,320	6,759	6,276	5,850	5,144	4,584	4,119	3,733
45	26,112	20,787	17,232	14,691	12,788	11,310	10,125	9,153	8,353	7,665	7,077	6,571	6,126	5,387	4,799	4,313	3,908
46	27,260	21,700	17,990	15,337	13,350	11,807	10,570	9,555	8,720	8,001	7,388	6,860	6,395	5,623	5,010	4,503	4,080
47	28,485	22,675	18,799	16,026	13,950	12,337	11,045	9,985	9,112	8,361	7,720	7,168	6,682	5,876	5,235	4,705	4,263
48	29,684	23,630	19,590	16,701	14,537	12,857	11,510	10,405	9,496	8,713	8,045	7,470	6,964	6,123	5,456	4,903	4,443
49	30,961	24,646	20,433	17,419	15,162	13,410	12,005	10,853	9,904	9,088	8,391	7,791	7,263	6,387	5,690	5,114	4,634
50	32,238	25,663	21,275	18,138	15,788	13,963	12,500	11,300	10,313	9,463	8,738	8,113	7,563	6,650	5,925	5,325	4,825

EXHIBIT V (Cont.)

AUTOMOBILE CREDIBILITY TABLE

Number of Cars Under Different Accident Rates for Each Value of Z.

Number of Accidents per 100 Cars Exposed

Z In Per Cent.	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	9	10	11	12
51	33,540	26,699	22,135	18,870	16,425	14,527	13,005	11,757	10,729	9,845	9,090	8,440	7,868	6,919	6,164	5,540	5,020
52	34,842	27,736	22,994	19,603	17,063	15,091	13,510	12,213	11,146	10,227	9,443	8,768	8,174	7,187	6,404	5,755	5,215
53	36,222	28,834	23,905	20,379	17,739	15,688	14,045	12,697	11,587	10,632	9,817	9,115	8,497	7,472	6,657	5,983	5,421
54	37,602	29,933	24,815	21,156	18,415	16,286	14,580	13,180	12,029	11,037	10,191	9,462	8,821	7,757	6,911	6,211	5,628
55	39,007	31,052	25,743	21,946	19,103	16,895	15,125	13,673	12,478	11,450	10,572	9,816	9,151	8,047	7,169	6,443	5,838
56	40,413	32,171	26,670	22,737	19,791	17,503	15,670	14,166	12,928	11,862	10,953	10,170	9,480	8,336	7,428	6,675	6,049
57	41,896	33,351	27,649	23,571	20,517	18,146	16,245	14,685	13,402	12,297	11,355	10,543	9,828	8,642	7,700	6,920	6,271
58	43,353	34,511	28,611	24,391	21,231	18,777	16,810	15,196	13,868	12,725	11,750	10,910	10,170	8,943	7,968	7,161	6,489
59	44,887	35,732	29,623	25,255	21,983	19,441	17,405	15,734	14,359	13,176	12,166	11,296	10,530	9,259	8,250	7,415	6,718
60	46,164	36,749	30,466	25,973	22,608	19,994	17,900	16,182	14,768	13,550	12,512	11,617	10,830	9,523	8,485	7,625	6,909
61	47,982	38,196	31,666	26,996	23,498	20,782	18,605	16,819	15,349	14,084	13,005	12,075	11,256	9,898	8,819	7,926	7,182
62	49,543	39,438	32,695	27,874	24,262	21,458	19,210	17,366	15,848	14,542	13,428	12,467	11,622	10,220	9,106	8,183	7,415
63	51,180	40,742	33,776	28,795	25,064	22,167	19,845	17,940	16,372	15,023	13,872	12,879	12,006	10,558	9,407	8,454	7,660
64	52,818	42,045	34,857	29,716	25,866	22,876	20,480	18,514	16,896	15,503	14,316	13,292	12,390	10,895	9,708	8,724	7,905
65	54,481	43,370	35,955	30,652	26,681	23,597	21,125	19,097	17,428	15,992	14,766	13,710	12,781	11,239	10,013	8,999	8,154
66	56,145	44,694	37,053	31,588	27,496	24,317	21,770	19,680	17,960	16,480	15,217	14,129	13,171	11,582	10,319	9,274	8,403
67	57,886	46,080	38,201	32,568	28,348	25,071	22,445	20,290	18,517	16,991	15,689	14,567	13,579	11,941	10,639	9,562	8,664
68	59,601	47,445	39,333	33,533	29,188	25,814	23,110	20,891	19,066	17,494	16,154	14,998	13,982	12,295	10,954	9,845	8,920
69	61,393	48,872	40,516	34,541	30,066	26,590	23,805	21,520	19,639	18,020	16,640	15,449	14,402	12,664	11,284	10,141	9,189
70	63,186	50,299	41,699	35,550	30,944	27,367	24,500	22,148	20,213	18,547	17,126	15,901	14,823	13,034	11,613	10,437	9,457
71	65,004	51,746	42,899	36,572	31,834	28,154	25,205	22,785	20,794	19,080	17,618	16,358	15,249	13,409	11,947	10,737	9,729
72	66,822	53,193	44,099	37,595	32,724	28,941	25,910	23,423	21,376	19,614	18,111	16,816	15,676	13,784	12,281	11,038	10,001
73	68,717	54,702	45,350	38,662	33,653	29,762	26,645	24,087	21,982	20,170	18,625	17,293	16,120	14,175	12,630	11,351	10,285
74	70,613	56,211	46,601	39,728	34,581	30,583	27,380	24,752	22,589	20,727	19,139	17,770	16,565	14,566	12,978	11,664	10,569
75	72,534	57,741	47,869	40,809	35,522	31,416	28,125	25,425	23,203	21,291	19,659	18,253	17,016	14,963	13,331	11,981	10,856

EXHIBIT V (Cont.)

AUTOMOBILE CREDIBILITY TABLE

Number of Cars Under Different Accident Rates for Each Value of Z.
Number of Accidents per 100 Cars Exposed

Z In Per Cent.	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	9	10	11	12
76	74,456	59,270	49,137	41,890	36,463	32,250	28,870	26,098	23,818	21,855	20,180	18,737	17,466	15,359	13,684	12,299	11,144
77	76,454	60,861	50,456	43,015	37,442	33,113	29,645	26,799	24,457	22,441	20,722	19,240	17,935	15,771	14,052	12,629	11,443
78	78,427	62,432	51,775	44,125	38,408	33,968	30,410	27,491	25,088	23,020	21,257	19,736	18,398	16,178	14,014	12,955	11,738
79	80,478	64,064	53,111	45,278	39,412	34,856	31,205	28,209	25,744	23,622	21,812	20,252	18,879	16,601	14,791	13,293	12,045
80	82,528	65,696	54,464	46,432	40,416	35,744	32,000	28,928	26,400	24,224	22,368	20,768	19,360	17,024	15,168	13,632	12,352
81	84,604	67,349	55,834	47,600	41,433	36,643	32,805	29,656	27,064	24,833	22,931	21,290	19,847	17,452	15,550	13,975	12,662
82	86,706	69,022	57,221	48,783	42,462	37,554	33,620	30,392	27,737	25,450	23,500	21,819	20,340	17,886	15,936	14,322	12,977
83	88,834	70,716	58,625	49,980	43,504	38,475	34,445	31,138	28,417	26,075	24,077	22,355	20,839	18,325	16,327	14,674	13,296
84	90,987	72,430	60,047	51,191	44,559	39,408	35,280	31,893	29,106	26,707	24,661	22,897	21,344	18,769	16,723	15,029	13,618
85	93,166	74,165	61,485	52,417	45,626	40,352	36,125	32,657	29,803	27,347	25,251	23,445	21,856	19,219	17,123	15,389	13,944
86	95,371	75,920	62,939	53,658	46,706	41,307	36,980	33,430	30,509	27,994	25,849	24,000	22,373	19,673	17,529	15,753	14,274
87	97,602	77,696	64,412	54,913	47,798	42,273	37,845	34,212	31,222	28,649	26,454	24,561	22,896	20,134	17,939	16,122	14,608
88	99,833	79,472	65,884	56,168	48,891	43,239	38,710	34,994	31,936	29,303	27,058	25,123	23,420	20,594	18,349	16,490	14,942
89	102,141	81,309	67,408	57,467	50,021	44,239	39,605	35,803	32,674	29,981	27,684	25,704	23,961	21,070	18,773	16,872	15,288
90	104,450	83,147	68,931	58,766	51,152	45,239	40,500	36,612	33,413	30,659	28,310	26,285	24,503	21,546	19,197	17,253	15,633
91	106,783	85,004	70,471	60,079	52,295	46,249	41,405	37,430	34,159	31,344	28,942	26,872	25,050	22,027	19,627	17,639	15,982
92	109,117	86,862	72,012	61,392	53,438	47,260	42,310	38,248	34,906	32,029	29,575	27,459	25,598	22,509	20,055	18,024	16,331
93	111,529	88,782	73,603	62,748	54,618	48,305	43,245	39,093	35,677	32,736	30,228	28,066	26,163	23,006	20,498	18,422	16,693
94	113,940	90,702	75,194	64,105	55,799	49,349	44,180	39,939	36,449	33,444	30,882	28,673	26,729	23,504	20,941	18,821	17,053
95	116,377	92,642	76,803	65,476	56,993	50,405	45,125	40,793	37,228	34,160	31,542	29,286	27,301	24,007	21,389	19,223	17,418
96	118,815	94,582	78,411	66,848	58,186	51,460	46,070	41,647	38,008	34,875	32,203	29,899	27,872	24,509	21,837	19,626	17,783
97	121,329	96,583	80,071	68,262	59,418	52,549	47,045	42,529	38,812	35,613	32,884	30,532	28,462	25,028	22,299	20,041	18,159
98	123,844	98,585	81,730	69,677	60,649	53,638	48,020	43,410	39,617	36,351	33,566	31,165	29,052	25,547	22,761	20,457	18,536
99	126,384	100,607	83,407	71,106	61,893	54,739	49,005	44,301	40,429	37,097	34,254	31,804	29,648	26,071	23,228	20,876	18,916
100	128,950	102,650	85,100	72,550	63,150	55,850	50,000	45,200	41,250	37,850	34,950	32,450	30,250	26,600	23,700	21,300	19,300

NOTE:—The number of cars required for 100% credibility as determined by formula for different accident rates have been pro-rated so that the required number for an accident rate of 5 will be exactly 50,000. This table then becomes simply an elaboration of that formerly used by the National Bureau.

RECENT DEVELOPMENTS IN WORKMEN'S COMPENSATION INSURANCE RATE MAKING.

BY

W. F. ROEBER

The rate making program adopted by the National Council on Compensation Insurance in 1925 and described in the paper captioned "The 'Permanent' Rate Making Method adopted by The National Council on Compensation Insurance" (*Proceedings*, Vol. XII, page 253) is, with two exceptions, the procedure now being followed by the National Council in the establishment of rates for workmen's compensation insurance. This paper will deal only with the amendments to the established program, both of which amendments have resulted from a study of experience by size of risk. The first relates to expense and the second, to pure premium or loss cost.

Except for differences due to variations from the normal state premium tax of 2%, the expense loading prior to 1928 was a uniform percentage by states. This expense loading was expressed as a percentage of gross premium on the theory that except for minimum premium risks, the expense is in direct proportion to the premium. In recognition of the fact that there is a minimum expense involved in the writing of every policy, regardless of size, the National Council early in 1928 amended the rate making program so as to include provision for an expense constant to be charged on every risk which is too small to meet the minimum requirements for experience rating. In most states, the line of demarcation between experience and non-experience rated risks is $300. A detailed explanation of this item will be found in Mr. C. J. Haugh's paper entitled "Recent Developments with Respect to the Distribution of Workmen's Compensation Insurance Costs" (*Proceedings*, Vol. XIV, page 262).

A study of loss experience on small risks was undertaken at about the same time as the corresponding investigation of expenses. New York was the first state to make an intensive study of this problem. The New York Compensation Inspection Rating Board issued in 1927 a call for loss ratio experience by size of risk to be reported separately for policy years 1924 and 1925. This call provided for the reporting of collected premiums and incurred losses by industry groups and by premium size. Upon the completion of the filing of these data, reports for all carriers were combined and presented for study. A review of the experience indicated a marked differential by size of risk. As the risk became larger, the loss ratio diminished. The degree of the trend, however, was not consistent from industry group to industry group.

After a rather prolonged study, it was decided to group all manual classifications into three broad industry groups of Manufacturing, Contracting and All Other. Within each of these groups the risks were divided as between those over and under $400, (the line of demarcation in New York as between risks subject and not subject to experience rating). The premiums were put on a manual rate basis and loss constants applicable to small risks determined so as to eliminate the differentials in loss ratios by size of risk.

In calculating the offsetting reduction in manual rates, consideration was given to the net credit produced through the application of the experience rating plan. The net result was to key manual rates to a level which, when reduced by the expected off-balance of the experience rating plan and increased by the premium derived through the application of the loss constants to small risks, reproduced the desired collected level as indicated by the New York experience for the three latest policy years. The details of this program will be found in the report to the Insurance Superintendent of New York by the Conference Committee appointed by the Superintendent to investigate the small risk problem.

In order to carry out this program in the future, a unit statistical plan was approved. This plan provides for the reporting of a miniature Schedule "Z" on each individual risk. The data thus collected will be used in compiling Schedule "Z" for rate making purposes, experience rating data and size of risk experience.

Following the New York investigation, the Massachusetts Bureau likewise issued a call for loss ratio by size of risk experience. The Massachusetts reports disclosed the same general condition that exists in New York but it was found necessary to provide different industry groupings. In Massachusetts the manual rate reductions corresponding to the addition of loss constants were more than offset by the loading required to counterbalance the effect of the experience rating plan. Massachusetts also adopted the unit system of individual risk reporting.

While this matter was still pending in Massachusetts, the National Council, in an endeavor to establish a national small risk program, issued a special call for loss ratio by size of risk experience and, as a temporary expedient, incorporated in the experience rating plan a balancing factor applicable as a flat loading to the adjusted losses of each risk. The Council call covered policy years 1924, 1925 and 1926 and required that the data for each state be reported by industry schedule (see Manual Classification Code Book published by the National Council) rather than by the broader industry groups used in Massachusetts and New York. A copy of the form used in reporting this experience is shown in Exhibit A.

These reports were combined by state and within each state by industry schedule and policy year. The reports were further summarized by combining these schedules into broader industry groups and also by combining the reports for the three years. The results show, on a countrywide basis, the existence of a generally higher manual loss ratio on small risks than on large risks. A careful analysis of the data indicated, however, that the elimination of such differential by the introduction of the so-called "loss constant program" would prove unsatisfactory. The experience shows, for states other than Massachusetts and New York, a lack of consistency between differentials by size, either on the total for the states or on the basis of industry groups from state to state. This is further emphasized by the inconsistencies within any designated group, both from year to year and by smaller divisions of such group.

A comparison between the ratios of collected to manual premiums, on the one hand, and the indicated differentials on the other, shows that a loading in manual rates sufficient to offset the deficiency in collected level would eliminate, on the average, the existing differential by size of risk. This led to the adoption of the following program for states other than Massachusetts and New York where, because of the marked differential indicated by the experience of these two states, it has been necessary to afford special consideration to the small risk problem.

1. *Experience Rating Plan.*

The elimination of the balancing factor in the experience rating plan which is applied equally to actual and expected losses and the substitution therefor of the equivalent of a uniform loading of 3% on actual losses, to be applied through the medium of the payroll modification factors. This 3% factor is designed to offset the effect upon manual rate level that may be attributed to the character of the data reported for experience rating purposes as contrasted with the data reported in Schedule "Z" for rate making purposes.

2. *Manual Rates.*

(a) Rate Supervised States.

The remainder of the total off-balance indicated by the ratio of collected to policy year manual premiums for the three latest policy years in each state is to be eliminated by a loading in the manual rates. The full effect of such loading will be realized on risks not subject to experience rating, but owing to the credibility allowed to the risk experience, only a partial effect will be realized on risks subject to experience rating. Consequently, a collected rate differential in favor of large risks will be produced and, to a comparable extent, the loss ratio differential by size will be offset.

(b) Non-Supervised States.

The ratio of collected to manual premiums does not represent solely the off-balance of rating plans in non-supervised states. Consequently for these states the actual state indications will be limited to a maximum off-balance on the entire business of 5%, which is the approximate average indication of the supervised states.

The program outlined above was tested on the basis of the experience reported for policy years 1924, 1925 and 1926. This test shows that on the average, the differential for the states included in the study is 1.118 on the basis of present manual rates, whereas on the basis of collected rates resulting from the new program, the differential is reduced to 1.033. It will be observed that not only does the new program provide for an adequate collected level over all, but also that it virtually eliminates the average differential between small and large risks. The details of this test are shown in Exhibit B.

The amended program contemplates the following procedure in the establishment of manual rate levels. As in the past, the indicated manual rate level change, exclusive of any loading for effect of rating plans, is determined on the basis of the three latest years of experience for the state in question. Payrolls for these same three policy years are then extended at the manual rates actually in effect during each of these years to determine the policy year manual premiums. These policy year manual premiums are then compared with the premiums actually collected during such years. The result of this comparison is the ratio of collected to manual which serves as a base for determining the required loading in manual rates. Before proceeding with the calculation of the manual loading factor, it is necessary to obtain certain other factors, namely, the average credibility for risks subject to experience rating and the percentage of the total business which is subject to experience rating. Both of these factors are obtained from the size of risk reports.

This program provides for the inclusion in the experience rating plan of the equivalent of a 3% loading on actual losses. It is, therefore, necessary to eliminate the effect of this 3% loading upon the ratio of collected to manual before proceeding with the calculation of the manual loading factor. This effect is determined by multiplying the 3% by the product of the actual loss level and the average risk credibility and adding the result to the ratio of collected to manual determined as above.

The ratio of collected to manual adjusted for this 3% loading indicates the needed increase in collected premiums. Bearing in mind the effect of credibility, the next step is to determine the increase in manual rates necessary to produce the required increase in collected rates. Having established the required loading in manual rates necessary to offset the remaining deficiency in collected premium level, the change in level indicated by the three latest years of experience is multiplied by this factor to determine the new manual rate level. The pure premiums which have already been selected on the state's rate level, exclusive of any loading for off-balance, are then multiplied into the payrolls for the three latest years to determine the manual premium level produced by these selections. As some departures from the formula pure premiums are usually made in the selection process, this level may or may not coincide with the rate level, exclusive of any loading for off-balance, indicated by the three latest years of experience. Therefore, the level of selected pure premiums is divided into the required manual rate level (including the loading factor) to obtain the factor which must be applied as a flat loading to such selected pure premiums.

It will be noted that the ratio of collected to manual is based on the three latest years of experience. It is contemplated that this loading will be changed annually in connection with the general rate revision, using in each such revision, the indications of the three latest available policy years. In other words, the ratio of collected to manual will be based on the same three years that are used in determining rate level. In order that the manual loading will prove, over a period of years, neither redundant nor inadequate, the average credibility and the percentage of business subject to experience rating will not be changed from year to year.

In connection with each general rate revision, a summary of the state Schedule "Z" experience is presented in an exhibit called the "Premium & Loss Exhibit by Policy Year". Part I of this exhibit shows, in addition to the loss ratios on the basis of actual collected premiums and incurred losses, the loss ratios on the basis of present manual rates and incurred losses on the benefit level of the state present law. The rate level is determined by the loss ratio indicated by the combined experience (on present manual rate and present law level) of the three latest years. The change in rate level indicated by the experience is determined from a comparison of the rate level loss ratio with the permissible loss ratio. Part II of this exhibit is a comparison of the collected premiums with the premiums obtained by extending the classification payrolls of each year at the manual rates in effect during that year and serves as a basis for determining the manual rate loading described above. When experience incurred under this program becomes available for rate making purposes, it will be necessary to eliminate the effect of the loading factors from both the collected and manual premiums before proceeding with the calculation of the new manual rate loading factor.

A Premium and Loss Exhibit for a typical state will be found in Exhibit C. The following gives the detailed calculation of the manual rate loading factor based on this exhibit:

BASIC DATA

From Loss Ratio by Size of Risk Experience:	
(1) Average credibility of risks subject to experience rating..	.419
(2) Portion of total business which is subject to experience rating..	.775
From Premium and Loss Exhibit:	
(3) Ratio of collected to manual.........................	.937
(4) Rate level change indicated by the experience.........	.966
From Test of Selected Pure Premiums:	
(5) Manual level produced by the selected pure premiums..	.985

CALCULATION OF MANUAL RATE LOADING FACTOR

(6)	Average risk credibility over all [(1)×(2)]	.325
(7)	Average class credibility over all [1.00−(6)]	.675
(8)	Actual loss level modified by average credibility[(3)—(7)]	.262
(9)	Realized effect over all of equivalent of 3% loading on actual losses in Experience Rating Plan [.03×(8)]	.008
(10)	Ratio of collected to manual adjusted for this 3% loading [(3)+(9)]	.945
(11)	Corresponding required increase in collected level [1.00−(10)]	.055
(12)	Required increase in manual level [(11)÷(7)]	.081
(13)	This manual increase expressed as factor [1.00+(12)]	1.081
(14)	Required manual level [(4)×(13)]	1.044
(15)	Manual loading factor [(14)÷(5)]	1.060

In the above calculation the present manual level has been taken as 1.00. Item (1) is obtained as follows: The midpoint of each premium size group, over the minimum eligibility requirement for experience rating, reported in the Size of Risk Call is increased to an experience period (five year) basis. The average experience rating premium splits are applied to each of these values to obtain corresponding normal and excess values. From these latter values are obtained the normal and excess credibility values (Z_n and Z_e) and finally the average credibility (Z_a). The Z_a values are then weighted by the corresponding premiums reported in this Call to obtain the average credibility for risks subject to experience rating. Item (2) is likewise obtained from the Size of Risk experience by taking the ratio of premiums reported for size groups over the minimum experience rating eligibility requirement ($300. annual premium in most states) to the total premiums reported. Item (3) is taken from Part II of the Premium and Loss Exhibit and Item (4) is obtained from Part I of the same exhibit. Item (5) is a comparison of the expected losses obtained by extending the payrolls of the three latest years at the selected pure premiums with the expected losses obtained by extending the same payrolls at the present pure premiums. In Item (6) the average credibility for risks subject to experience rating is spread over the entire business. The complement of this item represents the credibility of the class experience or the manual rate portion of the adjusted loss and is shown in Item (7). The experience rating formula for determining the adjusted loss is:

$$A \cdot Z + E\,(1. - Z) = \text{Adj.}$$

where: A = Actual Loss

$$\begin{aligned} E &= \text{Expected Loss} \\ \text{Adj.} &= \text{Adjusted Loss} \\ Z &= \text{Risk Credibility} \\ \text{and } 1.-Z &= \text{Class Credibility} \end{aligned}$$

Bearing in mind that the present manual or expected level has been taken as 1.00, the ratio of collected to manual represents the adjusted loss. Substituting in this formula we have:

$$A \cdot Z + 1.00\ (.675) = .937$$

$$\text{or } A \cdot Z = .937 - .675 = .262$$

Therefore, the actual loss level modified by credibility is .262 which is shown in Item (8). The remaining items are self-explanatory.

For practical purposes the 3% loading on actual losses in the experience rating plan will be applied on the expected loss side. Instead of including a factor of 1.03 in the loss modification factors, a factor of .971 (the reciprocal of 1.03) will be included in the payroll modification factors. The two produce identical results as will be seen from the following identity. The basic formula for determining the experience modification is:

$$\frac{A \cdot Z + E\ (1 - Z)}{E} = \text{modification}$$

Multiplying the actual losses by 1.03 this becomes:

$$\frac{1.03\ A \cdot Z + E\ (1. - Z)}{E} = \text{modification}'$$

Divide numerator and denominator by 1.03

$$\frac{A \cdot Z + \dfrac{E\ (1. - Z)}{1.03}}{\dfrac{E}{1.03}} = \frac{A \cdot Z + .971\ E\ (1. - Z)}{.971\ E}$$

$$= \text{modification}'$$

$$\therefore\ \frac{1.03\ A \cdot Z + E\ (1. - Z)}{E} = \frac{A \cdot Z + .971\ E\ (1. - Z)}{.971\ E}$$

$$= \text{modification}'$$

In order to produce a collected rate differential in favor of large risks and so eliminate the indicated differential by size of risk, the amended program contemplates an experience rating off-balance, that is, an off-balance from the loaded manual rate level. Consistent with this theory and with the method of determining the manual rate loading factor, the experience rating loss modification factors will be keyed to the level indicated by the experience rather than to that level increased by the manual rate loading factor.

The rate making program established in 1925 has proven eminently satisfactory as far as *manual* rates are concerned. In other words, the use of a three year level for determining rate level has given equitable and defensible results. This rate making program contemplated, however, that the rating plans would produce a balance. The schedule rating plan was balanced within itself effective January 1, 1927. As a temporary expedient until such time as the general problem could be reviewed, the experience rating plan was balanced in 1928 by means of a flat correction on the adjusted losses of each risk. The amended rate making program outlined above, is a substitution for this temporary expedient and accomplishes two results,—first, the assurance that over a period of years the *collected* premium level will be neither inadequate nor redundant and second, except for states such as Massachusetts and New York which, because of peculiar local conditions require special treatment, the elimination of substantially all of the indicated countrywide differential by size of risk.

EXHIBIT A

NATIONAL COUNCIL ON COMPENSATION INSURANCE

LOSS RATIO EXPERIENCE FOR EACH OF THE POLICY YEARS 1924, 1925 AND 1926, BY SIZE OF RISK AND INDUSTRY SCHEDULES

State____________

Carrier______________________________Policy Year____________

Industry Schedule_______ ____________________________
No. Name

Size Group (Amount of Earned Premium)	No. of Risks	Premium Earned	Losses Incurred	Loss Ratio
Minimum Premium Risks				
0— 74				
75— 149				
150— 299				
300— 499				
500— 999				
1,000—4,999				
5,000—9,999				
10,000— and over				

EXHIBIT B

NATIONAL COUNCIL ON COMPENSATION INSURANCE

TEST OF NATIONAL COUNCIL PROGRAM

STATE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Old Collected Level			Required Loading in Manual Rates to reproduce Manual Level	New Collected Level			Old Differential Under to Over (Manual rate Basis)	New Differential Under to Over (New Collected rate Basis)
	Under 300	Over 300	All		Under 300	Over 300	All		
Alabama	1.000	.952	.959	.052	1.052	.991	1.000	1.150	1.083
California	1.000	.927	.948	.069	1.069	.972	1.000	1.108	1.007
Colorado	1.000	.903	.931	.100	1.100	.959	1.000	1.005	.877
Georgia	1.000	.917	.934	.099	1.099	.975	1.000	1.160	1.029
Kentucky	1.000	.937	.949	.071	1.071	.983	1.000	1.053	.966
Louisiana	1.000	.927	.943	.081	1.081	.977	1.000	1.096	.991
Maine	1.000	.941	.952	.066	1.066	.985	1.000	1.200	1.109
Maryland	1.000	.909	.926	.115	1.115	.973	1.000	1.069	.933
Minnesota	1.000	.929	.951	.064	1.064	.971	1.000	1.112	1.015
New Hampshire	1.000	.934	.954	.059	1.059	.975	1.000	.878	.808
Oklahoma	1.000	.942	.951	.068	1.068	.987	1.000	1.151	1.064
Tennessee	1.000	.973	.979	.017	1.017	.995	1.000	1.054	1.031
Texas	1.000	.964	.969	.035	1.035	.995	1.000	1.248	1.200
Utah	1.000	1.050	1.042	—.092	.908	1.018	1.000	1.052	1.179
Vermont	1.000	.932	.950	.067	1.067	.976	1.000	1.021	.934
Virginia	1.000	.961	.970	.031	1.031	.990	1.000	1.103	1.060
Arith. Aver.—All States	1.000	.944	.956	.057	1.057	.984	1.000	1.091	1.016
Wtd. Aver.—All States	1.000	.940	.953	.063	1.063	.982	1.000	1.118	1.033

EXHIBIT B (Cont.)

EXPLANATION OF TEST OF NATIONAL COUNCIL PROGRAM

COLUMN

(1), (2), (3) The first three columns are the same as the ratio of collected to policy year manual premiums for the period covered by policy years 1924, 1925 and 1926.

(4) The required loading in manual rates has been calculated by assuming an average credibility of 50% on risks subject to rating, and taking the percentage of business under and over $300.00 from the size of risk data.

(5), (6), (7) These columns show the new collected rate level. For risks under $300.00, the full loading will be realized. For risks over $300.00, only half of the loading will be realized but, in addition, there will be realized on such risks slightly less than half of the 3% factor incorporated in the experience rating plan. Weighting each of these collected rate levels by the proportion of business affected, we obtain the desired level of 1.00 as shown in Column (7) for all business.

(8) The differentials on a present manual rate basis are shown in this column.

(9) The differentials on the new collected rate basis are shown in this column. They show to what extent the proposed program remedies the present differentials shown in Column (8).

NOTE.—The assumption of an average credibility of 50%, as made in this test, will be replaced by an actual calculation of the average credibility in the introduction of the program in any particular state. Similarly, the latest experience will be employed to true up the present manual rate level prior to introducing the proposed loading. The results shown on this test very likely will be changed slightly when this is done.

EXHIBIT C

National Council on Compensation Insurance

STATE X
Date April 1, 1929

PREMIUM AND LOSS EXHIBIT BY POLICY YEARS

PART I

(1) Policy Year	Actual Basis			Modified Basis		
	(2) Collected Premiums	(3) Incurred Losses	(4) Loss Ratio	(5) Premiums at 7-1-28 Man. Rates	(6) Losses on 8-1-28 Law Level	(7) Loss Ratio
1922	1,131,803	751,296	66.4	1,513,837	850,383	56.2
1923	1,364,350	925,108	67.8	1,796,928	1,028,405	57.2
1924	1,453,956	1,049,851	72.2	1,804,352	1,094,005	60.6
1925	1,654,365	1,173,652	70.9	1,885,122	1,194,278	63.4
1926	1,775,613	1,303,427	73.4	2,016,667	1,303,427	64.6
1927	2,196,578	1,317,383	60.0	2,411,843	1,317,383	54.6
1922-26	7,380,087	5,203,334	70.5	9,016,906	5,470,498	60.7
1925-6-7	5,626,556	3,794,462	67.4	6,313,632	3,815,088	60.4

Permissible Loss Ratio = 62.5

Change in Rate Level Indicated by Experience = $\frac{60.4}{62.5}$ = .966

PART II

(1) Policy Year	(2) Collected Premiums	(3) *Premiums at Policy Year Manual Rates	(4) Ratio Collected to Policy Year Manual
1924	1,453,956	1,592,051	.913
1925	1,654,365	1,754,867	.943
1926	1,775,613	1,866,106	.952
1924-5-6	4,883,934	5,213,024	.937

*These are premiums at the manual rates actually in effect during each of the years in question as contrasted with the premiums at present manual rates shown in Column (5) of Part I.

THE RELATION OF THE INSURANCE DEPARTMENT OF THE CHAMBER OF COMMERCE OF THE UNITED STATES TO THE CASUALTY INSURANCE BUSINESS

BY

TERENCE F. CUNNEEN*

MANAGER, INSURANCE DEPARTMENT, CHAMBER OF COMMERCE OF THE UNITED STATES OF AMERICA

The subject of my address, namely, "The Relation of the Insurance Department of the Chamber of Commerce of the United States to the Casualty Insurance Business," affords me an opportunity to present to you that part of our work which may be of particular interest to the members of this society. In order, however, that you may have a better idea of the general set-up of the National Chamber, a few preliminary remarks would be appropriate.

The service of the National Chamber is two-fold. The primary function, of course, is to obtain from its 1700 organization members, with an underlying membership of over 900,000 corporations, firms and individuals located in every state, the matured judgment of business on national questions and to present and interpret those views to the agencies of government and to the public. In this service it is the voice of American business and it speaks the business viewpoint on national problems affecting industry and commerce.

Of equal importance to its membership is the National Chamber's secondary function—its service function—direct aid to its members. This is the province of the departmental organization. Its expert staff is engaged throughout the year in study and research. The results of these activities are issued to the membership as bulletins, surveys and summaries.

The policies of the National Chamber are established by resolutions or referenda. Once a year, in annual meeting, accredited delegates may place the National Chamber on record after notice of such contemplated action has been given. The only other way is to refer questions to members for a vote through a referendum. The result of the vote is tabulated and a record showing how each member voted, together with the statement and argument of

*This paper presented by invitation of the Program Committee.

the case as presented, is given to government officials, Senators, Congressmen and to the public. Thus the position of the National Chamber is determined by the vote of its constituent members. The fact, however, that the National Chamber is put on record in respect to a given proposition does not bind members, who voted with the minority, to support the majority opinion.

The service function of the Chamber is performed by eleven service departments and three general departments. The service departments are: Agriculture, Civic Development, Domestic Distribution, Finance, Foreign Commerce, Manufacture, Natural Resources Production, Transportation and Communication, Trade Associations, Commercial Organizations and Insurance. The general departments are: Field, Research, Editorial and Promotion. Each of the service departments is headed by a manager and has connected with it a Departmental Committee. Effort is made to balance each committee by including in its membership the two directors elected to represent the department and by selecting those who will represent different points of view on questions coming before the department for consideration. For example, on the Insurance Department Committee we have policyholders, insurance agents, as well as representatives of casualty, fire and life insurance companies, both stock and mutual. The casualty insurance representatives on the Insurance Committee are: Mr. William Brosmith, Vice-President and General Counsel of The Travelers Insurance Company; Mr. F. Highlands Burns, President of the Maryland Casualty Company; Mr. P. W. A. Fitzsimmons, President of the Michigan Mutual Liability Company, and Mr. James S. Kemper, President of the Lumbermen's Mutual Casualty Company.

Keeping in mind the general set-up of the National Chamber, it is natural that it should have an Insurance Department. Insurance is an acknowledged integral part of our national economic system. It is one of the foundations of credit. A more enlightened public attitude towards the insurance institution, its ideals, service, problems and methods of operation is, therefore, to be desired. To promote such an understanding is the larger function of the Insurance Department. Basically, the program under which the Department is operating falls into the three broad headings of policyholders' service, legislation and conservation. The first of these, namely, policyholders' service, includes work of an educational nature. Through printed bulletins, mimeographed news letters and correspondence, informatory material is presented to organization members of the Chamber which in turn is relayed by them to their membership.

With a knowledge of the principles of insurance, the policyholders of a community are in better position to function upon legislation proposed in their states inimical to their interests. The National Chamber is committed to a number of policies relating to casualty insurance which are either in accord with or opposed to legislative proposals periodically advanced in the various states. Through the cooperation of local business men throughout the country, good progress has been made in carrying out these commitments of the Chamber.

Workmen's Compensation

The National Chamber by resolution is opposed to monopolistic state workmen's compensation funds. During the past few months a number of measures were introduced in various state legislatures to create such funds. When such bills are introduced it is the custom to notify organization members in the states in question of the proposed legislation, express the National Chamber's position with respect to such funds and furnish them with material in support of the Chamber's principles. With this information they are then in a position to act upon the matter.

For a number of years bills had been introduced in Congress to create a monopolistic state compensation fund for the District of Columbia. The Insurance Department consistently opposed this legislation and after years of endeavor with the cooperation of local organizations of business men of the District a satisfactory workmen's compensation law was secured. The bill which was enacted conforms to the established policies of the National Chamber, inasmuch as it permits employers to place their insurance with private carriers or to self-insure if they are able to meet the necessary financial requirements. In the same field of work the Department cooperated with the American Chamber of Commerce of Porto Rico in bringing about the enactment of a constructive workmen's compensation law and eliminating the government monopoly.

Another problem in connection with the subject of workmen's compensation in which the employers of the country are keenly interested is the trend of workmen's compensation benefits. To keep business men informed with relation to the liberalizing trend, the Insurance Department has surveyed the provisions of all the workmen's compensation laws of the various states and has published the results of its investigation in a bulletin which contains a digest in comparable form of the benefits under the law of each state. This bulletin has been widely distributed and used by legislative committees, trade associations, chambers of commerce, employers and insurance companies. It is proposed to revise the bulletin this year to include the amendments which have been made by the various states.

Compulsory Automobile Insurance

Most of you probably know that the National Chamber is opposed to the principle of compulsory automobile insurance. This subject remains a matter of national interest and, while Massachusetts is the only state that has enacted a law embodying the principle, considerable agitation for it is found in other states. The National Chamber, in cooperation with other organizations, has been successful in opposing the enactment of such legislation in other states as well as in the District of Columbia. Held out as a means of protection to persons injured in automobile accidents by assuring them of the financial responsibility of the drivers, compulsory automobile insurance at first thought has a popular appeal, but when it is considered in the light of all factors involved, thinking persons realize that compulsion in the field of insurance would be at the expense of the public welfare.

The results of the Massachusetts experiment support this statement. When the Massachusetts Legislature convened in January of this year there were more than forty bills affecting the compulsory automobile insurance law presented. Some proposed to abolish the law altogether while others suggested amendments of various kinds. The result is that thus far there has been put through the Senate in Massachusetts a bill for a recess commission to study this whole proposition all over again.

It is our belief that the states should enact suitable accident prevention laws or more vigorously enforce those which they have on their statute books in order to eliminate the source of the trouble before they consider compulsory automobile insurance measures.

In an endeavor to check the constantly mounting toll of automobile accidents, we have encouraged the enactment in the state legislatures of the Uniform Vehicle Code sponsored by the National Conference on Street and Highway Safety which has the support of the National Bureau of Casualty and Surety Underwriters and the American Mutual Alliance. Experience has shown that in the states where this code or similar legislation is in effect the automobile accident record is considerably better than in other states which have not taken this progressive step. Good progress has been made in securing the adoption of the code and it is our hope that other states will strive for uniformity along these same lines.

Special Insurance Taxes

All insurance men are keenly interested in the subject of special insurance taxes, but since these taxes are hidden in the insurance premiums, policyholders generally have not realized that they were paying them. Since the tax is indirect, the policyholder is not so apt to oppose proposed increases as he would if the levy were direct. To bring about a better understanding of this problem on the part of policyholders, the Insurance Department has carried on a program of education to emphasize the unfairness of the present system of levying these taxes. For the past six years the Insurance Department has made an annual survey of special insurance taxes imposed on policyholders in all states. This work is carried on by the department through the authorization of the organization members, which committed the Chamber to the principle that special state insurance taxes should be reduced to the total in each state which will adequately support the state's departmental supervision and that a uniform principle of taxing the holders of insurance should be adopted throughout the states.

It may be of interest to you to know that when a bill is introduced in the state legislature to increase special insurance taxes the procedure of the Insurance Department is to notify its organization members in the state of the introduction of the tax bill and to furnish them with literature as a means of assisting them. In one state a bill was introduced to increase insurance taxes for the purpose of furnishing revenues to fulfill a campaign pledge that free textbooks would be provided for the public schools. The department followed its usual procedure and secured the wholehearted support of the local organization members to such an extent that it was reported some of the members of the legislature received hundreds of communications induced through the activities of the chambers of commerce throughout the state.

Supervision and Regulation of Insurance

As a result of a detailed report prepared by the Insurance Committee after a careful survey of the problem of supervising and regulating insurance, the Chamber approved a comprehensive resolution on the subject. It is on record that state supervisory officials should be conversant with insurance principles and adequately compensated and that they should cooperate with one another, at public expense, in bringing about desirable uniformity in legislation, taxation, solvency tests, rating systems, classification of standards, returns, licenses and investments.

It also urges through its resolution that there be reciprocity between the states with regard to taxes, investments and departmental charges.

Health Conservation and Accident Prevention

Casualty insurance men whose companies write accident and health insurance should be interested in the program of the Insurance Department with relation to the conservation of health and prevention of accidents. In this work the department has assisted local chambers of commerce in the formation of committees on health and accident prevention and in helping them prepare a successful program of activities. In this connection a series of Health Bulletins has been issued containing valuable suggestions for specific activities. Many of the accident prevention committees have been particularly active with reference to street and highway safety, the chief emphasis being laid upon the enactment of uniform motor vehicle legislation as proposed in the Uniform Vehicle Code.

In order that the department may carry on a broader program of work in this field, the organization members of the Chamber committed it to the following resolution at the Seventeenth Annual Meeting held during the early part of this month:

> "The gratifying progress of recent years in extending the average span of human life gives good reason to expect further advance through concerted efforts, both for health conservation and for prevention of accidents, which are constantly growing and cause the premature death annually of thousands of our citizens. In order to conserve life and health to the fullest extent there should be further development of national interest and of national activity. In efforts directed to this purpose the Chamber should participate and should enlist the widest possible cooperation on the part of its membership."

In every community casualty insurance men are in a particularly opportune position to render constructive service by cooperating with their local chambers in this important work.

Conclusion

The department has been closely studying aeronautics insurance and is cooperating with the Aeronautics Committee of the National Chamber in developing proper insurance facilities to cover the risks incident to the operation of aircraft.

Another service which the department renders is that of handling service requests received from organization members, insurance associations and companies, policyholders and educational institutions. They range from matters involving detailed investigation and study to questions which can be readily answered by return mail. The department is in a peculiar position to furnish interested member insurance companies information on insurance conditions abroad, decisions of the United States Supreme Court affecting insurance and rulings by federal departments or bureaus.

In this summary of the department's activities in relation to casualty insurance, I have attempted to present to you the high points. In an address of this nature it is possible only to scratch the surface, but I hope it has indicated to you the value of the department in helping to bring about better cooperation between insurance and other forms of business in order that insurance may render greater service.

ABSTRACT OF THE DISCUSSION OF PAPERS READ AT THE PREVIOUS MEETING

THE PERMANENT TOTAL DISABILITY PROVISION IN LIFE INSURANCE POLICIES—EDWARD B. MORRIS

VOL. XV, PAGE 9

WRITTEN DISCUSSION

MR. JOHN M. LAIRD:

In presenting this paper in November, 1928, Mr. Morris rendered a timely service to the Society and the life insurance business. His work was distinctly helpful to the committee of company actuaries appointed by the Superintendent of New York and the committee of insurance department actuaries appointed by the National Convention of Insurance Commissioners. These two committees are now recommending Standard Provisions which agree closely with those given by Mr. Morris.

Mr. Morris suggested that permanent total disability should "cover any total disability lasting ninety days, income benefits to commence at the end of ninety days, no payments during the first ninety days period." The two committees have recommended that the first monthly payment be made at the end of four months and that no payment be made for any total disability lasting less than four months or for the first three months of a longer period of disability.

It is rather unfortunate that the word "uniformity" has been associated with these standard provisions. There is some advantage in uniformity but the chief purpose is to define the scope of permanent total disability as an incident to life insurance. It is felt by many insurance commissioners and company officials that the disability benefit has gone too far and that it would be better, at least for the present, to limit the scope. The adoption of the standard provisions will not require uniformity. The most liberal clause then permitted grants waiver of premium and $10 per $1,000 for any total disability which has lasted four months. Any company is, however, entirely free to grant a less liberal benefit —for instance, waiver of premium and $5 per $1,000 for any total disability lasting more than six months or even twelve months. On the other hand, it is expected that most companies will adopt the most liberal form of clause permitted. In that case, the companies will gradually accumulate a general experience on homogeneous data.

The question then arises—if the companies have a uniform clause, should there also be a uniform premium charge or should there at least be a minimum gross premium prescribed by law?

Under life insurance, Pennsylvania has for several years had a minimum gross premium for all business issued by a Pennsylvania company and for the Pennsylvania business of any outside company. This minimum has been the net premium by the American Experience Table with 3½% interest. In recent years, however, the mortality at the young ages improved and the interest earnings were so high that several stock companies felt justified in quoting premiums at the young ages somewhat lower than the minimum prescribed. The effect of the law was simply that residents of Pennsylvania had to pay more for their insurance than their neighbors in other states. To take care of this situation, the law has recently been changed so that hereafter the minimum gross premium in Pennsylvania is the net premium by the American Experience Table with 4% interest. For Pennsylvania companies, the new law applies only to their Pennsylvania business.

If a state prescribes a minimum gross premium it necessarily uses some rule of thumb method. If the legal minimum is set at a low figure, it is of no value. On the other hand, if it is set at a high figure, some companies will at certain plans and ages be forced to charge more than their own experience justifies. Fortunately, no other state has prescribed a minimum gross premium for life insurance. It would be most unfortunate if forty-eight different states each prescribed a different minimum.

The same reasons apply to disability premiums. It is therefore recommended that each company be allowed to compute its own gross premiums according to its own best judgment as to what its experience will be. This is particularly necessary in disability as the gross premium required depends not only on the nature of the benefit but also on the standards of selecting risks and on the methods of settling claims. Certainly at this time, when our knowledge of disability premiums is so limited, it would be most unwise for any state to prescribe a minimum gross premium, as it is always difficult to change a law from time to time to take care of new conditions.

So far as reserves are concerned, the situation is entirely different.

Each state should adopt a stringent basis of valuation. Even with our present limited knowledge, it is reasonable to assume that the reserves on active lives for permanent total disability according to the most liberal clause permitted under the new standard provisions should be at least 150% of the reserves by Hunter's Disability Tables. Steps have been taken to have eight or nine of the largest companies in the country combine their experience on disability in order to determine the best basis of reserves for active lives and for disabled lives. It is entirely possible that the combined efforts of these companies may also prove helpful in determining what gross premiums should be charged for the benefit.

The paper by Mr. Morris is an excellent foundation for the standard provisions and for further reports on reserves, net premiums and even gross premiums.

COMPENSATION RESERVES—E. ALFRED DAVIES

VOL. XV., PAGE 28

WRITTEN DISCUSSION

MR. PAUL DORWEILER:

The members of this Society, particularly the members of the Special Committee on Compensation and Liability Loss Reserves, are indebted to Mr. E. Alfred Davies for his paper on Compensation Reserves giving a concise report of his investigation. For, to a greater extent than will be generally realized from a casual reading of this paper, it has been necessary to set up special procedures involving many details in order to obtain the compilations needed.

Ratio of Paid to Incurred Losses by Policy Years

The Special Committee on Loss Reserves in its deliberation gave general consideration to a method of developing by policy years the ratios of paid losses to ultimate incurred losses. It was recognized that such a method had definite merits. Firstly, it uses data which are readily obtained as they constitute a part of the preliminary data necessary for the preparation of the present Schedule P. Secondly, it uses data from payments which are made in accordance with definite state laws and should yield a set of ratios as nearly stable as could be expected from any source.

The Committee also recognized that this policy year method had certain outstanding weaknesses. Firstly, it does not produce reliable ratios of paid to incurred as at the end of twelve months after the beginning of the policy year. For, at the present time, carriers generally do not have a ready means of tracing the ultimate incurred cost of accidents occurring during the first twelve months of the policy year. Secondly, it does not adequately reflect any change within the year in the distribution of the carrier's volume of business.

Ratio of Paid to Incurred by Month of Accident

Mr. Davies by his method of developing ratios of monthly payments by month of accident is able to follow through the ultimate incurred losses for any combination of months. This procedure permits the determination of reliable ratios as at the end of any month, provided of course the volume of data used is adequate. The separation of the experience of a policy year into divisions according to month of accidents also tends to reflect any change in the distribution of the volume of business within the year.

In overcoming the main weaknesses in the policy year method Mr. Davies, through the method of tracing payments by month of accidents, has introduced a system which, while not difficult to understand, yet in its actual operations requires very much detail. For aside from the additional coding of payments for month of accident these payments must be sorted currently and filed and recorded in twenty-four divisions (seventy-two divisions if losses are separated into three natures of injury), for each completed policy year. This process is to continue until the number of divisions are decreased because all cases for a given month of accident have been closed. While this is not impossible it may well be questioned whether the function served by this check on reserves is worth the extra effort. The additional coding, sorting, compiling and checking involved are so considerable as to make this procedure seem prohibitive to some of those who must assume the direct responsibility for a Statistical Department's producing accurate results under an already heavily loaded schedule. For it must be remembered that the present system is not entirely amiss, as is indicated by the consistency in the loss ratio of a given policy year when viewed as at different periods of development.

Volume of Experience

The volume of experience available enters as an important factor into the question of separating losses by nature of injury or by geographical districts and also into the desirability of using the method at all for a specific carrier. The loss in stability due to separation of experience by month of accident is overcome through the introduction of the 12-months-running periods, at the cost of but a slight increase in detail.

Best's Insurance Reports—1928—lists slightly over 100 carriers of Compensation Insurance. An approximate grouping of the carriers with respect to the annual compensation premium income is shown in the following.

25% have over $3,000,000 annual premium
25% have from $600,000 to $3,000,000 annual premium
25% have from $250,000 to $600,000 annual premium
25% have less than $250,000 annual premium

The carrier whose data are represented in the investigation belongs to the upper half of the highest group. It would not be expected that this method when applied to the carriers in the other groups would indicate results of the same degree of stability.

Losses by Nature of Injury

In the investigation Mr. Davies has divided the losses by nature of injury into fatal, all other indemnity, and medical. This separation reflects any change in the distribution of business producing a change in the distribution of losses by nature of injury. It also permits a check of the reserves by each nature of injury thus possibly revealing deviations which may not be noticeable when considered as a whole.

The carrier's distribution of losses by nature of injury depends primarily on the industries and the state laws involved. In round numbers the following divisions may be considered representative of a typical carrier.

Nature of Injury	*Percent of Losses*
Medical	30%
Fatal	20
Other Indemnity	50

Unless the volume of the carrier is very large there is serious question whether the results obtained compensate for the extra work added by these divisions and the consequent loss of stability due to the smaller volume of experience in each division.

Exhibits and Charts

In the exhibits only the blank forms used in the compilation are generally shown. It would be an aid in forming an opinion as to the relation of stability and volume of experience to have the actual data for one of the natures of injury. In Charts I and II no vertical scales are indicated. While this helps the reader by directing his attention to the relationship of the two drafts which is the object of the chart, it also leaves him at a loss to estimate directly the amount of any deviations that may occur, as e. g. in 1927 and 1929, Chart I.

Carefully planned investigations like this one often reveal interesting results as a sort of by-product. Mr. Davies has called attention to the seasonal variations in paid losses per accident shown in Chart IV. The regularity of these annual fluctuations throughout the period points to a causal relation. Is this due to different distributions of industry during the summer and winter seasons?

Before passing judgment as to the general usefulness of this method of checking loss reserves it should be considered in its relation to carriers of various size groups. It would be appreciated if other carriers trying out this method would follow Mr. Davies' suggestion and submit their results to the Society's Committee on Compensation Reserves.

AUTHOR'S REVIEW OF DISCUSSION

MR. E. ALFRED DAVIES:

The gracious discussion by Mr. Dorweiler leaves little to be said, since he writes, not in criticism but as a valuable supplementary paper to the original article, and one is indebted to Mr. Dorweiler for his suggestions.

In the matter of expense it will be recognized that, if there is any method which will give even a partial proof of the total reserve as at any given point, then such a method would in and of itself justify a reasonable expenditure. There is so much at stake that a small or even, if necessary, somewhat larger additional expense would be money well spent. It is found by my own Company that the additional work on the extra cutting and tabulating required for carrying on the described method of checking the reserve is about one person per year, plus the use of the tabulating machines for a short time. This includes getting the data by states and by the three kinds of loss—death, medical, and all other. It might be mentioned that the routine procedure calls for certain of the data anyway, while reviews of the company estimate reserves require still further detail to facilitate the reviews by six months periods or even oftener.

In our current studies we are combining the indemnity and death payments and have gone back over the prior records to make the adjustment. This will reduce the number of records without affecting the results. In the accompanying Chart A we are showing three lines, i. e., accidents reported by twelve-months-ending periods as of each calendar quarter, contrasted with indemnity and death payments combined for the four-months-periods, twelve months ending; and with medical losses similarly compiled. It will be noted that this chart is carried to a later point than our former charts and yet despite the substantial rise in accidents the four-months-payments curve continues to be in close accord. The medical, as will be seen, has increased considerably faster than has indemnity. This is probably a familiar phenomenon and indicates the need for a breakdown between the two kinds of payments.

The second Chart B reviews Chart I of the earlier paper and shows that the spread in 1927 and 1928 referred to by Mr. Dorweiler has been eliminated as a result of reserve reviews and will point, we believe, to the fact that this relationship of the four months paid to the incurred continues as a fairly reliable measure by which to check reserves.

As to the omission of percentages on Chart I, our Exhibit 5 of the original paper shows the relationship between the incurred and four month payments at December 31 and June 30.

It is admitted that the size of the carrier would have quite a bearing as to the value of this method. Just at what point in size of company the value would become less we are not prepared to say; this probably would develop if the various companies could find opportunity to submit their data to the Compensation Reserve Committee. It might be said, however, in passing, that the smaller companies would perhaps find it possible to separate the more severe cases, which of course are much fewer in number, and treat them separately, handling the rest of their business along the lines of the suggested method.

We have been adhering in our own use of the method to the proof of the calendar year reserves in total without attempting to split it into policy years. Mr. Dorweiler indicates correctly the detail which would be involved if it were attempted to carry this method into policy year by accident month. However, there would be a possibility, if it were thought advisable, to apply the same cost per accident to all policy years' accidents occurring in any given month rather than attempting to locate the specific policy year accidents. We are not handling our own records in this way and at the moment have not planned so to do.

In conclusion, Mr. Dorweiler calls attention to the by-products. That is true and the seasonal variation of which he speaks is an interesting example. We ourselves have not determined the cause of this seasonal variation. Hypotheses may be formulated—one is that which Mr. Dorweiler himself suggests, i. e., the different distributions of industry during the summer and winter months; a second possibility is the influence of air and light and general good weather on the fact of the patient's recovery. While hardly likely, yet consideration might be given to the possibility that vacations and absences on the part of the carrier's personnel, and consequent delays in payments, would have a bearing. Here, again, one would like to see other carriers' charts to ascertain if they too find this seasonal fluctuation.

CHART A

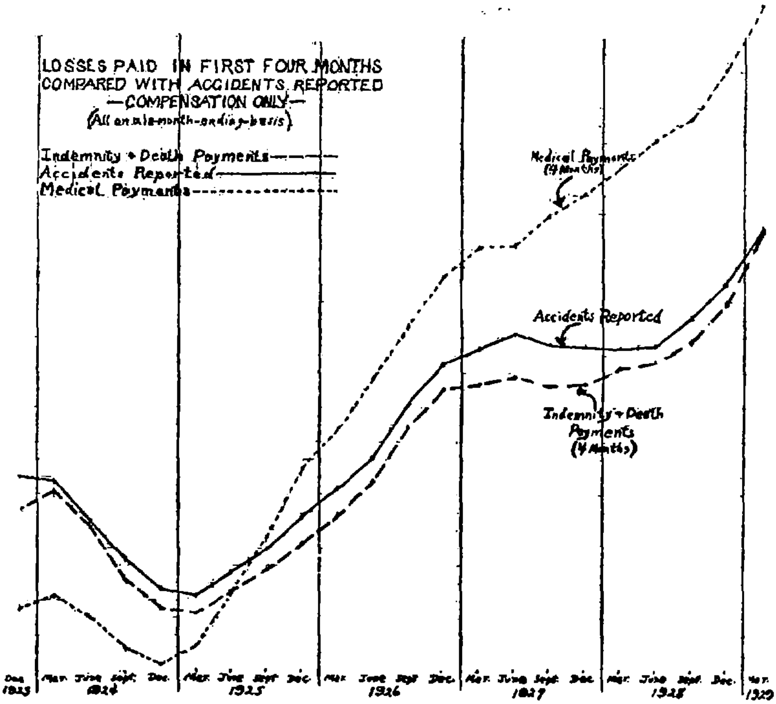
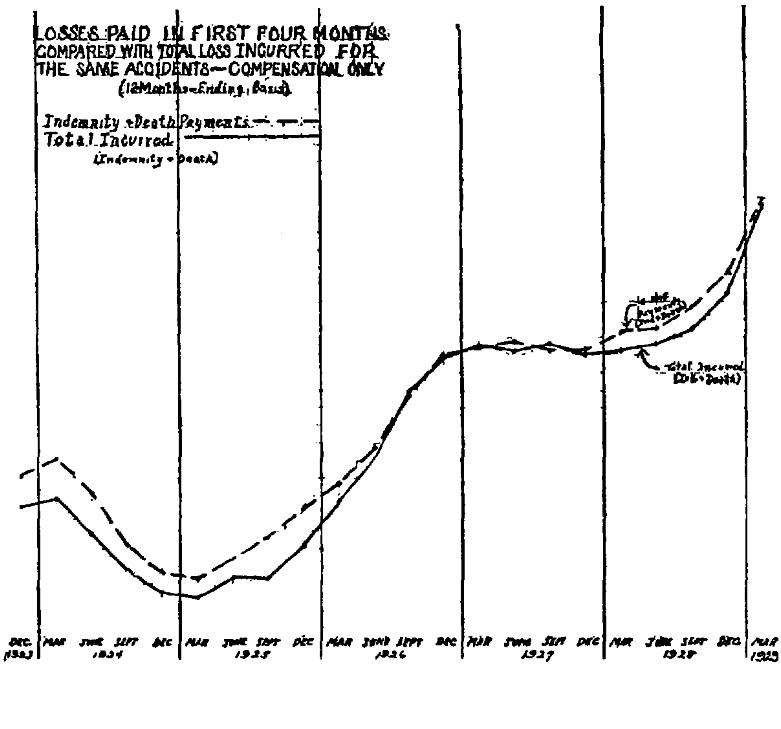

LOSSES PAID IN FIRST FOUR MONTHS
COMPARED WITH ACCIDENTS REPORTED
—COMPENSATION ONLY—
(All on a twelve-month-ending basis)
Indemnity + Death Payments
Accidents Reported
Medical Payments
Medical Payments (4 Months)
Accidents Reported
Indemnity + Death Payments (4 Months)
Dec. 1923
Mar. June Sept. Dec. 1924
Mar. June Sept. Dec. 1925
Mar. June Sept. Dec. 1926
Mar. June Sept. Dec. 1927
Mar. June Sept. Dec. 1928
Mar. 1929

CHART B


LOSSES PAID IN FIRST FOUR MONTHS COMPARED WITH TOTAL LOSS INCURRED FOR THE SAME ACCIDENTS—COMPENSATION ONLY
(12 Months-Ending Basis)
Indemnity + Death Payments
Total Incurred
(Indemnity + Death)
DEC. 1923
MAR JUNE SEPT DEC
1924
MAR JUNE SEPT DEC
1925
MAR JUNE SEPT DEC
1926
MAR JUNE SEPT DEC
1927
MAR JUNE SEPT DEC
1928
MAR 1929

REVIEWS OF PUBLICATIONS

RALPH H. BLANCHARD, BOOK REVIEW EDITOR

Benefits of the German Sickness Insurance System From the Point of View of Social Hygiene. Franz Goldman and Alfred Grotjahn. P. S. King & Son, Ltd. (for the International Labor Office), London, 1928. Pp. xii, 188.

The present volume describes the German sickness insurance benefits, estimates their value from the point of view of public health, and analyzes the work done and results obtained by insurance in reducing the risks of infection and preventing disablement, and in maintaining the health of the insured and their families. In the four and a half decades of its existence, sickness insurance, a branch of the social insurance system of Germany, has developed far beyond the original narrow limits outlined for it. The War and its aftermath have awakened public interest to the necessity of an organized system for the protection and maintenance of the public health. The alliance of the social insurance system with the other public health defences of the country seemed to be a natural consequence of this awakening popular interest in health conservation.

This new conception of the purpose of social insurance is expressed in Article 161 of the Constitution of the Reich of 1919:

> The Reich shall create a comprehensive insurance system, in the conduct of which persons insured shall play a leading part, for the preservation of health and working capacity, the protection of maternity, and for the provision against the economic consequences of old age, infirmity, and the vicissitudes of life.

The first German sickness insurance law was passed by the Reichstag in 1883. In the years following, the circle of persons eligible for insurance was rapidly enlarged, and the extent of the benefits steadily increased. In order to unify all of the subsequent legislation, the Federal Insurance Code was passed in 1911. This code for the first time made provision for surviving dependents, and remedied a number of earlier defects. However, so many amendments to the Code were necessary subsequently, that it had to be redrafted in December, 1924, again in May, 1925, and still again in January, 1926. And yet the Code is far from being complete.

Reliable statistics show that at least three-quarters of all cases requiring public relief are due to the sickness or death of the wage-earner. Many persons who would be helpless in case of sickness are granted a legal right to the minimum of assistance necessary to protect them from physical deterioration and actual want. When entering into a regular paid employment, the necessitous classes of the German population are guaranteed the indispensable minimum of medical treatment in case of illness, and assistance in preventing sickness without regard to their age or to any physical disabilities from which they may already be suffering.

The law compels the employer to pay one-third, and the worker two-thirds of the premium for sickness insurance. The rate of the contribution is calculated on the "basic wage," which is related to the actual wage. Contributions are suspended during the period of incapacity. In hazardous occupations contributions may be graded, but no extra charge is made for additional risks due to debility, sex, or age.

The practical work of sickness insurance is entrusted to the sickness funds which are public bodies recognized by law. They are organized either on a local or on an occupational basis. State supervision is accomplished by insurance officials who act as lower and higher courts of arbitration and settlement. The average membership of the sickness funds has increased not only absolutely but also in comparison with the growth of population. In 1885 membership of the legal sickness funds averaged 4,294,173, or almost ten per cent. of the population. In 1925, 18,234,970 persons, or one-third of the total population, were insured in these "funds." To these 20,000,000 insured persons (there are almost 2,000,000 in mutual aid societies) must be added the eighteen or nineteen million family dependents of the insured to whom sickness benefits have been extended. Thus at least 39,000,000, or more than three-fifths of the total population of Germany, enjoy the benefits of sickness insurance established on warrant of constitutional and statute law. To this number must be added another 4,000,000 who are insured in the so-called "middle-class" funds based on the principle of mutual aid.

From the point of view of social hygiene, it is especially significant that cash benefits in legal sickness funds are in principle subordinated to skilled medical treatment and preventive care. It is also of primary importance that sickness protection has been extended to uninsured dependents of the insured without increase of premium. Equally noteworthy is the extension of compulsory insurance to apprentices and to school children engaged in industry. This makes possible the use of prophylactic measures for the benefit of these young persons whose health, on account of their tender age, is liable to be affected by the conditions of employment.

Experience has shown that every insured person calls on his sickness fund on an average of more than once a year. This means that the population is beginning to apply for advice and help in good time, even for complaints which appear comparatively mild. Such practice leads in some cases to the detection and elimination of insanitary housing and working conditions.

It is estimated that almost 30,000 doctors, or 80 per cent. of the whole medical profession, work for the sickness funds; and for the majority of the doctors, this work is the principal source of income. It was not until 1923, however, that relations between doctors and sickness funds were placed on a secure legal basis. At that time a series of provisions were introduced into the Federal Insurance Code to regulate the nature of doctor's contracts and the manner in which they were to be drawn for the whole of Germany.

Dental treatment is provided by the sickness funds for all the insured and their family dependents. At first only acute toothaches were treated and damaged teeth removed. Very soon benefits were extended, and at present a thorough overhauling of the entire oral cavity is frequently provided. Decay of the teeth in adults is a striking demonstration of the necessity for applying preventive treatment in childhood. Dental prophylaxis extends at the present time even to the supervision of diet for pregnant women.

The sickness funds have endeavored to provide all necessary hospital treatment. In fact, sickness insurance has been a decisive factor in the recent growth of the German hospital system. Statistics show that about one patient in three suffering from venereal disease received treatment in hospitals, about one in four suffering from tuberculosis and from diseases of the digestive system; about one in five suffering from diseases of the respiratory system; and about one in twelve from influenza.

In order to enable a person suffering from a mild or a serious disease to stop work without loss of wages, the sickness funds provide cash benefits. These benefits amounted to 420,000,000 marks in 1925, being the largest individual item of expenditure.

However, cash benefits are restricted to cases of emergency. In the period from 1885 through 1925, while cash benefits per member increased 320 per cent., medical benefits increased 650 per cent., and hospital benefits 700 per cent.

Child welfare has been enhanced considerably by the benefits of the sickness funds. Expectant mothers are under medical supervision and are attended by a midwife or doctor at confinement. Infant welfare centers, of which there were 5000 in 1926, give medical attention to children and instruction to mothers. School children are afforded curative treatment, preventive physical training and dental services. Even healthy adolescents are examined periodically and are kept under medical supervision.

One of the most important aims of sickness insurance from the viewpoint of social hygiene is the wide dissemination of popular education in hygiene. This knowledge is being imparted by verbal instruction, the distribution of printed matter and by various exhibits. School courses in public health are emphasizing the principles of correct living and of prolonging the length of life. Recently, the Central Union of German Sickness Funds has begun the publication of a monthly journal, "Health," which has a circulation of half a million copies. Likewise, National Health Week has aroused widespread popular interest in public health.

The authors conclude that, in the four and a half decades of its existence, the German sickness insurance system has become an exceedingly important factor in promoting the health and the working capacity of the German people. The authors of this volume have included a number of statistical tables throughout the text to substantiate that claim.

LEE K. FRANKEL

Manual of Accident and Health Insurance. Armand Sommer. The Spectator Company, New York, 1928. Pp. v, 141.

"The language of our book"—we are quoting the closing paragraph of Mr. Sommer's introduction—"is neither technical, theoretical nor statistical, nor is it a treatise to arouse the fictional enthusiasm of the reader. It is the elementary primer of the day to day occurrences in the prosaic field of income protection and is written with the literary abandon of an unofficial personal conversation between an accident and health underwriter or agency manager and the agent." As for his style and the treatment of his material, we feel incapable of improving upon the author's own description of it. Indeed, the manual is so free from the esoteric and smacks so little of the pedantic as to be, for the most part, of as much interest and enlightenment to the prospective policyholder as to the ambitious agent aspiring to success in the accident and health field.

Devoting his first chapter to a rather brief and somewhat sketchy history of the development of accident and health coverage, Mr. Sommer appropriates fully five pages to the printing of a fac-simile of an accident policy of the type commonly written in the 1880's, which space, to our mind, might have been used to better advantage. No mention is made of the so-called ten premium accident policies and ten premium accident endowments, which made their *début* in 1888, and received their *coup de grace* in 1904. These are of historical importance, and deserving of a place in any discussion of the general trend of accident insurance. We shall not attempt to describe the coverage under these forms, interesting though it is, but shall confine ourselves to Mr. Sommer's book; it is much easier, not to say safer, to review the work of another than to do something original. Too much adverse criticism of this chapter, which, as a history, is a bit disappointing, appears to be unwarranted, however, The author makes no pretenses of being an historian, and the purpose of his book clearly is not to trace in detail the evolution of accident insurance, but to treat the marketing of it. With this in mind, it seems that there is no necessity for including a history in a work of this sort, and we are inclined to regret that it was attempted. The book as a manual would have been complete without it, though the author's outline, which follows, might have been worked into his introduction, preferably with the inclusion of dates.

1. Travel accident coverage only for the extent of the journey.
2. Travel accident coverage with no mention of a particular journey.
3. Travel accident coverage and certain specified other types of injuries.
4. All types of accidental protection with many limitations and restrictions.
5. All types of accident coverage with limitations and restrictions, and with certain limited types of illness, mostly contagious diseases, which themselves border in theory on the accidental.
6. Accident coverage unrestricted and health with few limitations.
7. Accident and health both unlimited and unrestricted.
8. Accident unlimited and unrestricted and health unrestricted but limited as to time.

Mr. Sommer then becomes prophetic, and predicts that the next step will be, in all probability, accident and health unrestricted but limited. Limitation of the claim-paying period is quite common, of course, in accident policies, particularly in the industrial forms.

The profuse use of the word "unrestricted" throughout the book appears at first to be a bit startling; however, this is explained later by showing that the provisions are *not* restrictions to the *average* man.

Mr. Sommer next gives us a clear, concise description of the various types of accident and health contracts, pointing out the purpose and value of each. Industrial policies, limited special contracts, ticket policies, premium policies, non-cancellable, group, and installment purchase insurance are discussed at some length. This section should prove of interest to anyone carrying accident insurance of any sort. A true sense of the appreciation of values is evident in the discussion of the newspaper accident policies, ticket policies and premium policies in particular. The intrinsic worth of each is clearly set forth, together with an unprejudiced and unbiased opinion.

The policy contract is next taken up in detail, and is very well done. The author has followed the conventional form of accident policy and interpreted each clause, explaining the various agreements, limitations and provisions in such a way as to leave no doubt in the mind of the reader, uninitiated though he may be, as to the meaning of the contract. The difference between indemnity paid for inability to perform the duties of one's own occupation and indemnity paid for inability to perform the duties of any occupation is clearly pointed out. Since the book was written, the practice has been generally adopted by a great many of the larger commercial accident companies of writing their accident contracts so that indemnity is paid for fifty-two weeks while the insured is prevented from performing the duties of his occupation, and indemnity thereafter is paid only while he is disabled from performing the duties of any occupation.

One company has recently put on the market a contract which consolidates the various medical benefits, such as hospital and nurses' fees and surgical benefits, and agrees to pay up to a certain stipulated amount for medical attention. This feature of the contract should prove to be readily understood by a prospect, and require very little explanation on the part of the agent.

The next section is devoted to a discussion of the various underwriting principles and practices, followed by a brief summary of the routine of claim adjustment. The paragraphs treating the "Term of Policies" are somewhat confusing. We were not aware that it was the general practice to make an interest charge on health or disability premiums when the premiums were paid quarterly or semi-annually. The treatment of the application is very well done, outlined in detail as it is, in such a way as to instruct the agent not only in the manner in which the various questions should be answered, but, what seems of equal if not greater importance, the reasons for asking them. For example, the importance of stating the full duties in connection with the occupation of the insured is clearly brought out. The underwriter needs the information, and the statistical department also requires it in order to prepare experience which will be reliable.

Riders or waivers are similarly treated, and, as these undoubtedly require delicate handling by an agent and present one of the most difficult matters of explanation to an assured, we cannot be too lavish in our praise of the logical manner in which Mr. Sommer explains them. If every agent understood them and could explain their purpose as inoffensively to an assured as Mr. Sommer does to the agent, much friction would be avoided on this score.

Accumulations, double indemnity and elimination periods are next taken up. This historical development of each is traced, together with a brief discussion of their relative importance as selling arguments. Appreciating the diversity existing in accident and health insurance needs, the proper time to stress these features is pointed out, together with advice as to the manner in which they should be referred to in making a sale.

Considering that the manual is compiled primarily for the use of agents, and to assist them in increasing their volume of accident and health business, it is only fitting that some space be devoted to describing a typical interview. A Stereotyped Sales Campaign is printed in which the usual demonstrations are made and objections overcome. Various types of advertising are described and criticized, and the book closes with the admonition that success largely depends upon the agent himself. He must not only be able to inspire confidence but, what spells success in any field, prove worthy of it.

In closing, allow us to compliment Mr. Sommer on having turned out one of the very few treatises on the subject which can be read with equal interest by agent and assured. Truly instructive, one cannot put the book down without a certain sense of having gleaned a rather comprehensive appreciation of "what it's all about."

E. S. FALLOW

Workers' Health and Safety. Robert Morse Woodbury. The MacMillan Company, New York, 1927. Pp. xii, 205.

"Workers' Health and Safety" is the first in a series of monographs concerned with the improvement of economic and social statistics. These monographs are prepared under the direction of the Institute of Economics established by the Carnegie Corporation of New York.

In his study in the preparation of this monograph the author has found that it is the unfortunate experience of students of economic and social problems that much of the statistical material that is currently assembled is inadequate. He believes this situation to be the result of—first, a tendency on the part of statistical agencies to follow a stereotyped pattern in assembling data; and second, the failure to modify the scope and character of statistical programs to meet the needs of changing conditions.

The book concerns itself with a statistical program for the development of statistics in connection with industrial accidents and health. It is divided into two parts—Part I, Industrial accidents and Part II, The Workers' Health.

Part I, Industrial Accidents, considers first, the problem, second, the statistics needed for prevention, alleviation and for the distribution of the costs to industry through insurance, and then the sources and scope of available data pointing out the defects in the statistics which can be obtained. The author then in great detail outlines a program for the extension and modification of statistics on accidents for use in prevention and alleviation.

Under Part II, The Workers' Health, the author first considers the problem, then the statistics needed, together with an appraisal of existing statistics, and finally outlines a program for the collection of health statistics in detail.

The book is well written, and is a very complete handbook for anyone interested in establishing a statistical program for the collection of statistics concerning the workers' health and safety. The approach to the problem has been to study the present problems in the fields of health and safety with a view to ascertaining the objects and purposes for which statistical material is required. These objects and purposes are then used to prepare detailed specifications for the data to be collected. The final step is to set forth a program of statistics adequate for the determination of the solution to the problem.

WILLIAM J. CONSTABLE

The Construction of Index Numbers. Warren M. Persons. Houghton Mifflin Co., Cambridge, Mass., 1928. Pp. i, 90.

Within the six chapters of this book, Dr. Persons discusses the problem of the construction of index numbers as one involving not only economics and mathematics, but also the nature of the data utilized. The discussion is brilliant, clear and analytical.

During the course of the discussion he expounds 11 formulas for index numbers in which weights and averages were selected in such a way as to eliminate the bias between weights and the corresponding relatives. Of these eleven, he stresses a weighted geometric mean formula as being the ideal, where P_1 and P_2 are prices at various periods and Q_1 and Q_2 are quantities in the same periods. The formula for the index number is as follows:

$$\left(\frac{\Sigma p_2\, q_2}{\Sigma p_1\, q_2}\cdot\frac{\Sigma p_2\, q_1}{\Sigma p_1\, q_1}\right)^{1/2}$$

In Chapter six, which is a ten-page summary of the first eighty pages of the text, he gives a resume in a concise form of the problem of measuring the average change of prices between two or more periods, the comparison of fixed weight indexes, special difficulties in obtaining satisfactory price indexes for two or more periods or places, and the divergence of chain indexes from corresponding fixed base indexes.

The book is a valuable addition to the library of either the economist or the statistician who is doing work of any nature whatsoever with index numbers.

F. E. YOUNG

College Algebra. N. R. Wilson and L. A. H. Warren, Oxford University Press, American Branch, New York, 1928. Pp. viii, 451.

Aiming to write a text, not a treatise, we have not always proceeded from formal definitions in introducing certain difficult but fundamental notions.

The greater part of the subject-matter is our common inheritance from past generations, but modifications have been made, it is hoped for the better, in almost every chapter.

These two statements are quoted from the preface, because after reviewing the 21 chapters into which the 451 pages of the text have been conveniently divided, we found that they "echoed" so to speak, our impression of the book.

There has been both in content and in form, a workman-like job done in presenting this text to the public. The text leaves the general impression of having drawn more largely from the field of Actuarial Science in obtaining material for discussion and problems than any other similar text we have had the privilege of reviewing. For this reason, in addition to recommending it, we feel that it could be included among the list of Algebra texts given in the recommendations for study in connection with the syllabus of our examinations.

F. E. Young

State Insurance In The United States. David McCahan. University of Pennsylvania Press, Philadelphia, 1929. Pp. xvii, 290.

An attorney for a prominent group of insurance companies who, by virtue of his office, takes some little interest in the doings of legislatures, remarked recently that, notwithstanding all that has been spoken or written on the subject of State Insurance, the documents which were really worth sending to a person interested in preparing an argument or brief on the subject could be numbered on the fingers of one hand.

The work under review is admirably adapted for that purpose. It is short on declamation, long on facts and logic. The author states (and the book gives ample evidence of the fact) that he has visited 37 states and traveled 20,000 miles in pursuit of the facts, collecting the widely scattered, diffuse and oftentimes very obscure official reports, interviewing state officials and insurance men. He has undoubtedly succeeded in collecting an array of facts never before brought together, dealing with state insurance not merely in its disseminated fractions but also as a whole. More noteworthy is his use of this material. It is a real pleasure to see how carefully each statement is buttressed by fact, and the entire series drawn together in an orderly chain of reasoning leading to some very definite conclusions. This task he has performed for each group of state funds, giving of course the greater attention to the more considerable groups. Thus, nearly two-fifths of the work is devoted to compensation funds; a substantial part to public pension systems, hail funds, bank guaranty funds, and funds for insurance of public property. Unfortunately, it is impossible to follow the thread of the argument in detail. It is too painstaking and exact to admit of brief generalization.

Indeed, one merit of the work consists in what the author has deliberately not done. There is little reference in the work to the familiar war cries that occupy so prominent a place in most discussions of the subject. A good deal of the spicy and effective phraseology of these discussions, when reduced to its naked logic, boils down to neither more nor less than this—I am against state insurance because it is paternalism, collectivism, Socialism, Communism, Bolshevism, and therefore totally and diametrically opposed to red-blooded Americanism, the essence of which is individualism. This when impressively and picturesquely enlarged upon gets an excellent reaction; in any audience naturally anti-socialist.

It cannot be overlooked, however, that all audiences are not that way. There are not a few out-and-out Socialists in the community, and a good many more who accept a part of the Socialistic program, finding nothing particularly abhorrent therein. Exactly the same line of argument has been used against Workmen's Compensation and a number of other measures which, having been adopted, are accepted as excellent and much needed reforms; and for a good part of the community this war cry is taken as the raising by interested parties of an old familiar bogey. It may be instanced too that Socialism, while undoubtedly appealing to those who have the worst of it in the economic situation, and undoubtedly essentially revolutionary, involves a social and an ethical philosophy which have had strong appeal to many very noble natures, and have won the adherence of some very acute intellects. To be sure, many Socialists talk most atrocious nonsense but one is not so sure that the individualists are not equally culpable. Just now, in our era of prosperity, the tendency towards Socialism is slight. Given other conditions, and the sort of an audience you get in a legislature, which comes a good deal closer to being a fair cross-section of the state than any other audience, and a discourse along the above lines might prove, not only very ineffective, but perhaps a boomerang.

Now the present work, while reaching a conclusion adverse to state insurance of the monopolistic type, buttresses that conclusion with arguments of a different character. The existence of certain definite shortcomings is shown in this and in that type of state fund. The fact that these shortcomings appear in more than one type of state fund, the fact that these shortcomings are linked up with the political and governmental conditions inherent in the state organization, and that in a competitive situation they tend to disappear, make out an excellent case for the superiority of private insurance over state insurance. Thus, in the compensation state fund in West Virginia, in the hail funds, in the bank deposit guaranty funds, the same unwillingness to charge a proper rate for the insurance undertaken; the same difficulty in raising rates to meet unfavorable conditions; the same financial instability.

This mode is less picturesque than the vituperative, but the more it is studied, the more impressive it becomes. Deliberate, passionless, inevitable, the argument goes from point to point, stopping at no filling station, and making no detour, but driving straight on to the conclusion. This type of argument is one which is calculated to have weight with the student, or the person who approaches the subject from a strictly non-partisan point of view. For the advocate who prepares a case, it is a rich storehouse of both data and argument.

It may be added that, in spite of these qualities, the book is much more readable than the ordinary text. The author's study of state funds in their native heaths has had its result in a vivid concreteness of concept, and sometimes picturesqueness of phrase. The words "the short-changing of injured workmen," in reference to the mode of loss-settlement of certain of the compensation funds, leaves very little to the imagination. And one cannot refrain from quoting appreciatively the comment on page 118. "National Council rates—may also be regarded as being as nearly equitable as any that human ingenuity has as yet been able to formulate."

Altogether, the work fits into a niche as yet very sparsely tenanted, and bids fair to be for some time to come a leading work of reference upon a most important and most intricate and obscure subject.

CLARENCE W. HOBBS

The Behavior of Prices. Frederick C. Mills. National Bureau of Economic Research, New York, 1927. Pp. 598.

We are prone to think of progress in science in terms of its significant achievements, the sign posts of new roads—those phenomenal generalizations that alter fundamentally the direction of scientific effort: Newtonian gravitation, Einstein's relativity or the discovery of vitamines. Without in the least discounting their importance or the personal achievements of their discoverers we should not forget that they do not stand in isolation but result in general from the cumulation and sifting of vast amounts of evidence, that out of many failures comes one success. The accumulation of evidence and the development of new methods of handling it are oftentimes the forerunners of new and significant achievements.

It is with some such thoughts as this in mind that one must approach the task of evaluating Professor Mills' book "The Behavior of Prices." There has been no attempt here to form broad generalizations about price behavior, indeed very little of interpretation in any degree; but a vast accumulation of evidence and a development of method. There is implicit in all these pages the thought that the history of prices contains much of importance for the understanding of economic activity and also for the progress of economic science. There have been great developments in the measurement of price levels; there have been attempts, such as that of Mitchell, to see into the complex interrelations of prices in a coordinated *price system;* and there have been brief studies and suggestions for further study of price dispersion, e. g. Fisher, Flux and Crump. These efforts reflect a growing conviction that prices needed to be studied in greater and greater detail, that averaging was not enough but must be supplemented by other characteristics of price populations or by studies of individual price series. The *Behavior of Prices* is a significant achievement, born of the conviction of an able student of prices that these further things needed to be done, and brought to successful completion by the aid of the National Bureau of Economic Research. The unaided efforts of a single worker could not have completed such a study as this short of many years of labor—much of one man's working lifetime.

The author states, in one of the last sentences in the book, that "the immediate objectives of the present study are the development of a method of analysis and the accumulation of a body of facts which may conduce to an understanding of the price system" (p. 437); and he had said in the beginning (p. 37) "The present classification (of the characteristics of price series) is an experimental one—and is not to be looked upon as rigid or exhaustive." No judgment concerning the book as a whole or concerning particular methods of analysis can therefore be passed without constant reference to this fixed purpose; or again, one may feel that a particular bit of analysis has not carried far in a useful direction, and yet be unable to offer anything in its place. Such is the pathbreaking character of this study. In most cases the author has applied known standard methods of analysis; the newness lies in the application. But in other instances he has had to develop entirely new methods.

As said above, little has been done previously in the study of price behavior beyond the construction and study of price indexes with some attention given to dispersion of the group that is averaged. This study goes back first and fundamentally to the individual price series and seeks to analyze their behavior before considering the behavior of groups of prices. The basic material upon which the study is made is found in the wholesale price bulletins of the U. S. Bureau of Labor Statistics. Chapter II, 160 pages, is devoted to the analysis of individual series and measures of the amplitude and frequency of price change, of trends, and of cyclical fluctuation are developed; and the individual series compared with respect to each.

Two measures of the amplitude, or variability, to use the author's term, of price movements are constructed, one for monthly and one for annual series. The first, the average deviation of the monthly items of each year divided by the year average and expressed in percentage terms, is calculated for each year 1890 to 1925, the complete results being shown in the appendix for a small number of commodities; for the complete list of commodities results are shown only as averages of this coefficient for groups of years, 1890-97, 1898-1905, etc. To measure year-to-year variability the author employs the mean deviation from the mean of link relatives of average annual prices; two such measures being given for each commodity, one for the years 1890-1913 and one for 1890-1924.

The chief consideration in the choice of the first measure, that for monthly prices, was that "price changes themselves are facts of immediate concern to producers and consumers 'and such a measure' may be accepted at its face value and compared with similar measures for other commodities" (p. 41) and on this point there would be general agreement; but the author says also that "Each annual measure relates to price variations within the year, reflecting movements due to all causes, secular, seasonal, cyclical or accidental," (p. 40), the accuracy of which statement is in some doubt. Monthly variability within the year as measured by the average deviation of monthly items, may vary with the secular trend but when this measure is divided by the mean annual value of the monthly items, the influence of trend upon the resulting coefficient is insignificant. And again, this base, or divisor of the ratio, may contain considerable of cyclical or accidental elements, so that the final percentage probably contains nothing more than residual elements of the cycles or accidental fluctuations in the series; and again when the period averages are taken there is almost certainly a cancelling tendency for these residuals, with the result that the variability index in question measures with a high degree of probability the whole of the seasonal influence plus an unknown portion of cyclical and accidental influences and no secular at all. With the author's decision not to attempt to separate these various elements of variability in his coefficient, there is no objection and there is agreement with his main defense of the coefficient; but in this explanation of it, possibly a minor point to him, I believe that he is in error, And to me the point is not minor, for before we have reached ultimates in our analysis of price behavior we must deal analytically with these separate effects of separate causal forces. An earlier comment, however, is pertinent here: there is nothing better at present to offer in its place, and, regardless of its interpretation, the coefficient supplies important information as to the facts of varying average monthly variability.

The yearly coefficient, as the author states, in effect measures variation over a period of years from a constant percentage rate of change, since if the link relatives had a constant value, the average deviation would be zero. This index, he says, reflects movements due to forces other than seasonal and very short time, that is, essentially, due to trend and cycles. As with the monthly measure, this index is supported mainly on the ground that actual changes from year to year are the ones which mostly affect business dealings and economic relations; and it is preferred to its chief alternative, deviations from a line of trend. It is true that deviations from a hypothetical trend may involve bold assumptions about the measurement of trend, but one may question the statement (p. 50) "Actual fluctuations, not departures from a hypothetical trend are the significant measures of variability," since variability that is cyclical is significantly different from variability that is secular. But as a matter of fact, the major contribution to this annual variability coefficient is cyclical and not secular, for a large share of the secular element is necessarily removed by the process of taking link relatives. One cannot help a regret that the author did not grapple in a more fundamental way with the important problem of trend. A coefficient based upon deviations from trend would have been a measure largely of cyclical influences, but with some trend influences present due to failure correctly to measure trend; and that, as I see it, is just what the present coefficient is, with the limitation that the trend influence is probably greater than it would have been had approximate trends been adapted to each individual series, whereas the present method in effect rigidly hypothecates a simple exponential trend in every case. The coefficient as it stands is an *approximate* measure of the effect of cyclical influences upon each of the two hundred odd commodities, and as such gives a good basis for comparing them with reference to the importance of cyclical factors over the periods of comparison.

For a measure of the *frequency* of price change the author takes the ratio of the total number of changes (applied to monthly data only) to the total number of months less one, the coefficient thus having limits of variation from zero to unity. He calls attention to the desirability of a shorter time interval for a comprehensive investigation of frequency of price change and to the difficulties inherent in this measure resulting from the fact that many series used are averages of several constituent series, or of similar series in several markets or of different days in the month. He is right of course that the fundamental measure of frequency of price change should be confined to a single series in a single market and should be based upon a complete record of all actual changes that have occurred. For these reasons it seems to me that this coefficient must be ranked in importance far below the measures of monthly and annual variability.

The next subdivision of chapter two is devoted to a study of the trends of individual price series, for the years 1896 to 1913. While a comprehensive treatment of the problem of trends would necessitate special study of the growth factor in each series and the probability of many different methods of measuring their various trends, the author's purpose has not been this, but rather such a study as would make possible comparisons of the different series so as to bring to light a fundamental shifting of price relationships that continues through time. And for this purpose, his measurement of trend is sufficient. He has fitted to each series for the period 1896 to 1913, a period as he says of relatively constant growth for most price series, an exponential curve with a constant rate of growth. The growth comparisons for different price series thus afforded furnish the basis for one of the truly significant discussions of the entire book, a discussion that deserves to be read and pondered by every compiler of a price index number and especially by those who persist in the demand for a normal price period as base, or for normal weights. The upshot of his discussion is that the only normal thing about prices is their persistent tendency to change, some up and some down, and thereby to bring about permanent and fundamental shifts in economic relations.

An entirely new procedure has been developed for the measurement and study of cyclical fluctuations in commodity prices. The usual method of correcting each series for trend and seasonal was discarded, first, because the author says he was not trying to measure true cyclical but rather to describe individual price movements during general swings of prices; and second, because of the technical difficulties of measuring true trend and seasonal and the practical difficulties of insufficient time or materials. The method followed compares each series in its fluctuating movements with the selected highs and lows of a standard series, the standard used being the wholesale price index. By a careful comparison of each series with this standard, he is able to calculate in months the duration and percentage of rise and fall, the timing of these movements with reference to the standard, an index of cyclical variability, and other useful measures. An enormous amount of descriptive material for the comparison of individual price series is thus obtained, and certain conclusions readily appear. Thus, "The sensitivity to cyclical movement—varies greatly as between different commodity groups." (p. 94) "Even where there is a distinct tendency to precede or lag behind general prices there is considerable variation in the degree of lead or lag." (p. 101) Many "price changes did not appear to have any necessary connection with the business cycle." (p. 102)

No review can do justice to all the descriptive material thus assembled or to all the relationships brought to light among the commodities studied. There is nevertheless one feature running through all this analysis that I find distinctly unsatisfactory. It appears in the selection of a standard series for comparison and in the selection of arbitrary reference dates of this series for deciding whether cycles have or have not occurred in the various individual series. Antecedent to this whole procedure lies the conception of a *general business cycle* as a gargantuan force, causal in character, and bringing in its train the cycles in these individual series. Were space to permit, it would be possible to point out many bits of evidence produced in this book, and some of its interpretations as well, that are against this hypothesis and yet the author never quite succeeds in freeing himself from it. See for instance, p. 215, "internal instability is in part, at least, a result of an unstable price level;" p. 361, note, speaking of "changes of the price level, as cause, and disturbance of internal relations, as effect;" or p. 369, "the causal relationship runs from changes in the price level to variations in the degree of internal disturbance......" To be sure, he states this position conservatively, as an hypothesis, or an assumption; but the conception is deeply rooted in current thinking, though a voice is raised against it now and then. I believe it is time to assert positively that no such causal relationship exists; that the working of causal forces must be sought first in the demand and supply conditions for individual commodities and that it is only the cumulation of effects on individual commodities that produces the thing we call a general business cycle, if and when such cycle occurs.

This objection to the author's procedure in measuring price cycles does not, of course, bring about a general condemnation of his results. A different procedure would no doubt produce significant differences in the cycles of some series but not of all. Much of the timing relationships discovered would still remain; and it must not be forgotten that the author claims only experimental justification for his work, nothing final. The differences between this and a procedure based upon the improved hypothesis will lie in interpretations, in ultimate explanations and the present procedure must be credited with an important start in that direction.

Chapter III contains, in my belief, the most significant results of the whole six hundred pages, for it studies the frequency distributions of price relatives with the main object in mind of discovering evidences of stability or instability in any set of price relationships. The earlier part of the chapter, devoted to the development of indexes of dispersion and displacement, is of least importance. Without going into too technical details, the index of dispersion is a measure of the spread of a given set of price relatives based upon the standard deviation and one conclusion stands out, that it cannot be used, as has been thought by some, to forecast changes in the price level. The index of displacement, designed to measure shifts in the relationships of sets of price relatives, is $(1 - \rho)$, ρ being the coefficient of rank correlation.* Space limitations forbid any detailed consideration of either of these indexes, in view of the much greater importance, indeed fundamental significance, of what follows. This is a study of curve types and characteristics of the many groups of price relatives, using the method of Karl Pearson. The criteria of curve type, β_1 and β_2, together with other constants in the Pearsonian procedure, are calculated for frequency distributions of relatives, both fixed base and link, weighted and unweighted and for both arithmetic and logarithmic distributions. On the assumption that the normal curve and Type III curve represent stable types, the degree of departure from these types, or of breakdown in the conditions of stability, is ascertained for all these distributions, though the author recognizes the tentative character of conclusions about stable frequency distributions based upon

*As the author has no doubt already discovered, the formula for ρ has, by a typographical slip, been given incorrectly in the book. See p. 288.

these criteria (see p. 318). The possibilities of the method are well illustrated by the charts and data of Figures 43 and 47. By plotting beta-points, as he calls them, in a plane, the coordinates of each point being respectively the β_1 and β_2 of a given distribution of relatives and by locating the positions that represent stable or near-stable conditions, he is enabled to trace over certain chronological periods the trend toward unstable or stable conditions. Thus the data shown at the bottom of Figure 43, the figures being too large to show on the chart, trace the growth from 1910, and especially from 1914 to 1918 of highly unstable conditions in wholesale prices; while Figure 47 even more eloquently displays the return from the conditions of greatest instability in 1916 to approximate normality (in the Gaussian sense) by 1923. This type of analysis seems here to show great possibilities and deserves to be carried much further.

Space limitations in a review already over long necessitate omitting any discussion of Chapter II on regional differences in price behavior and the final Chapter, IV, on the study of frequency distributions of the various measures developed earlier for individual price series. It has been impossible to do more than call attention to some of the outstanding features of the book. It has gone so much farther than any previous study of price behavior that we are confronted by a vast array of new technique or new applications, and it would not be surprising therefore if many of the procedures used failed to command universal approval, and a few exceptions have been registered in this review. It is all the more necessary to recognize therefore the author's accomplishment as an outstanding contribution to our knowledge of price behavior, and, as said earlier, a path-breaking adventure. It is proper also to state that the work could not have been done in its present form without the assistance of an organization such as the National Bureau of Economic Research and that it has been financed by that organization wholly in the interests of impartial science. The sale price of the book undoubtedly covers a very small portion of the total cost.

BRUCE D. MUDGETT

CURRENT NOTES

ARTHUR N. MATTHEWS, CURRENT NOTES EDITOR

Colleges Giving Insurance Training

That educational institutions and students attending them are taking an increased interest in all forms of insurance is evidenced by the number of universities and colleges which are now offering insurance courses. An interesting development along this line is that the student is not satisfied with a general course in insurance principles and practices but is anxious to extend his investigation into one or more branches of the business and acquire a more complete understanding than would otherwise be afforded by a study along general lines of all insurance forms.

There are probably several reasons for this but one of the most important is the demand which exists today for individuals who have a basic knowledge of insurance principles and are acquainted with some of the major lines. This applies particularly to the casualty business where the introduction of so many new companies into the field has exhausted the supply of available trained men and the executives of these newcomers into the field are reaching out to the universities and colleges to supply them with likely material.

In the past the universities have limited their instruction to a study of the economic principles underlying the insurance business or to a study of fire, life and perhaps marine insurance. This was occasioned by the absence of suitable text for the study of the casualty business. Recently this hindrance to the study of casualty insurance has been removed by the appearance of suitable textbooks on this subject.

Among the universities and colleges that are now offering courses in casualty insurance are the University of Arizona, Butler College, University of Minnesota, University of Montana, Washington University, University of Florida, Yale University, New York University and Ohio State University.

For some time the University of Pennsylvania has been offering courses in the casualty lines but it is only recently that the other universities have extended their courses beyond those dealing with life, fire and marine insurance. It does not take long for the intelligent young man of today to become acquainted with those fields of business which by their growth and development afford unusual outlets for an individual's ability. At least, the possibilities which the casualty field now affords appear to be receiving very general recognition from the students of our colleges and universities. The business, by the way, is quite pleased at this development.

Connecticut Auto Rates

The Connecticut Motor Vehicle Responsibility Act, which becomes effective July 1, provides, as the old law did, that the Motor Vehicle Commissioner shall require evidence of financial responsibility from any driver or owner whose car has been involved in an accident causing personal injury or property damage in excess of $50, or who shall have been convicted of any violation of certain motor vehicle laws. Such evidence of financial responsibility may be in the form of an automobile public liability and property damage policy, a corporate surety bond, a personal surety bond or a cash deposit with the State.

Under the amendments, however, the Motor Vehicle Commissioner is directed to classify those who are obliged to furnish proof of financial responsibility into three classes, A, B, and C, according to the seriousness of the offenses committed by them or the accidents caused by their cars and their responsibility for such accidents, and these three classes are to be charged different liability and property damage insurance rates.

Thus on and after July 1, there will be five different rates for automobile insurance in Connecticut. One will be the regular manual rate, applicable to persons who have driven cars less than two years and during that time have not been required to furnish proof of financial responsibility. Another will be the merit rate, of 10 per cent. off manual, available to owners of private passenger cars who have had good driving records for two years and have not been required to show proof of financial responsibility.

For those classified by the Motor Vehicle Commissioner in Class A, the rates will be manual plus 10 per cent.; for Class B, manual plus 25 per cent., and for Class C, manual plus 50 per cent. The commissioner may require any insurance company to present the facts and figures upon which any experience rate may be based. The law provides for filing rates by an organization for the companies and provides a penalty of $25 to $1,000 for "any insurance or surety company or any agent thereof who shall wilfully certify that there has been charged a premium other than that actually charged."

Provision is also made for reclassifying drivers, placing in the next lower premium class those who for twelve months have not been involved in a law violation or accident and placing in the next higher premium class those who have been so involved within a year.

Authority is given the commissioner to suspend the drivers' licenses of those who fail within sixty days to satisfy judgments against them for injuries due to their negligence, except judgments for costs and for nominal sums and except where appeals are taken, until evidence that the judgment has been satisfied is presented to him.

It is estimated that careful drivers in Connecticut will be saved about $500,000 this year through the operation of the merit rating plan. The rate penalties imposed upon those who have been required to show proof of financial responsibility, of course, will partially offset this in the total premium income from automobile liability and property damage insurance in the State.

Automobile Insurance

Effective November 1, 1928, one of the largest companies in the automobile insurance business resigned from the National Bureau of Casualty and Surety Underwriters in order to be in a position to write this line on the installment premium basis. This company adopted a plan effective January 1, 1929, whereby the policyholders could pay their automobile insurance premiums by means of monthly installments. The other companies soon adopted similar plans and at the present time the payment of premiums on automobile policies by means of monthly installments has been almost universally adopted.

The inauguration of the installment payment plan started a period of unsettled conditions in the automobile insurance business. On March 25, 1929, two companies withdrew from the National Bureau in order to put into effect a merit rating plan for private passenger cars whereby a owner who had not been involved in an accident during the twenty-four months preceding the effective date of his policy would receive a discount of 10% in his premium. Other companies adopted various methods of discounting the premiums and some went so far as to give a flat 10% reduction to all risks.

There was so much feeling aroused over this condition and so many companies were attempting to outdo each other with their proposals that there appeared to be an impending rate war. However, the more stable minds in the casualty insurance field spent their efforts toward averting such a condition. A plan was adopted by the National Bureau of Casualty and Surety Underwriters and approved by Superintendent Conway of New York, which seems to be a solution of all the objections and difficulties encountered. The plan adopted is available only to those companies writing at manual rates and any other rate reduction must be substantiated by the experience of the company filing such reduction. The merit rating form of endorsement is as follows:

> In consideration of the reduced premiums at which these Policies are issued, the named Assured declares the following Declarations to be true:
>
> (1) The named Assured has owned and operated a private passenger automobile for a period of not less than 24 months immediately prior to the effective date of these Policies.
>
> (2) No private passenger automobile owned by the named Assured has been involved in an accident resulting in bodily injury or damage to the property of another while being driven by him or to the best of his knowledge and belief while being driven by anyone with his permission, during a period of 21 months ending three months prior to the effective date of these Policies.
>
> (3) The named Assured's operation license has not been suspended or revoked, nor has he been convicted of driving while intoxicated, evading responsibility after an accident, or reckless driving, during a period of 21 months ending three months prior to the effective date of these Policies.
>
> (4) The named Assured keeps brakes and steering gear in good working condition and will have them inspected at least semi-annually and will give written evidence of such inspection if required.
>
> If the named Assured has owned and operated two or more private passenger automobiles concurrently during part or all of the period stated in Declaration 1 above and one or

more automobiles were involved in such an accident as is described in Declaration 2 above and within the period described therein the named Assured further declares:

The number of such automobiles involved in such accidents was ———.

The number of such automobiles not involved in such accidents was ———.

It is seen that the plan established a 10% reduced rate level for private passenger cars for the owner having had a good experience. The plan, although it is met by objection from some quarters, and is possibly not ideal, nevertheless is a stepping-stone toward giving proper recognition to the experience of careful drivers for which there has been a long felt desire.

New York Taxicab Rates

Superintendent Albert Conway of the New York Insurance Department has ordered that effective July 1, 1929, rates for statutory public liability and property damage insurance, which taxicab owners operating in Greater New York are required to carry, shall be reduced. According to experience statistics reported as the result of a special call by the Department prior to May 1, owner-drivers of taxicabs paid $360 per annum for the insurance coverage required by the highway law, while fleet operators paid $384 to $456 per annum according to the size of the fleet. The difference between the rate is due to the greater personal interest and direct control of operation by the owner-drivers.

At the request of the insurance carriers the Superintendent permitted them to increase fleet rates to $480 per annum, effective May 1, 1929. As the aggregate premium income on the previous basis has proved adequate it appeared to him that some reduction for owner-drivers cars was warranted. Experience statistics indicated that while the increase requested on fleet cars was warranted, a reduction on individually owned cars was likewise justified. The order requiring a reduction to $324 per annum to owners of one taxicab followed. The reduction means a saving of $36 per annum to each of approximately 10,000 taxicab owners with an aggregate saving to them of $360,000 per year. All taxicabs insured direct with the companies receive a further reduction of $24 per annum.

Automobile Public Liability Rates

New rates affecting liability and property damage lines on passenger cars in New York, Ohio and Maine became effective on January 28, 1929. These rates represent a reduction from the pre-existing rates varying from 5.9% to 29.9% according to territory. This rate revision applied only to passenger cars privately owned and in the three states named.

As regards New York City territory new liability rates show a reduction of 16.1% while the property damage rates are 5.9% lower. The New York Suburban Districts show a rate reduction of 18.1% as to liability cover and 20.4% reduction as to property damage. The entire state will enjoy a reduction averaging 12.5% as to liability and 10.6% as to property damage.

The revised rates for Ohio, averaged for the entire state, give a reduction over pre-existing rates of 11.2% for liability insurance and 20.9% for property damage. The revision of rates for the Maine area consists of re-establishing the rates in force there prior to December 12, 1927, and thus bringing that state's automobile rates in line with those in New Hampshire and Vermont.

English Automobile Rating Problem

In England motor insurance rates and profits (if any) are matters which seem to command more interest in the press than almost any other insurance subject. During the month of December three separate suggestions for improving the basis of rating were advanced.

Mr. B. A. Glanvill, President of the Corporation of Insurance Brokers, at the annual dinner of the Insurance Institute of Norwich, said that it was a very unjust thing that a man like himself, who uses a motor car three times a week, or less, should be charged the same premium as a man who uses his car from early morning until late at night, driving himself sometimes into a lamp post. In his judgment motor car insurance should be based on mileage, but never yet has there been devolved a scheme that would give to the insurance companies such a premium to pay the necessary claims for accidents and allow a profit under a mileage basis. Some day, however, someone would devolve such a scheme.

Mr. F. Akeroyd, Accident Manager of the British Oak Insurance Company, Ltd., in an address before the Insurance Institute of

London on "Some Modern Aspects of Motor Insurance", made more than one suggestion. He offered some constructive criticism of the present system of rating cars on horsepower and value only, although he said that it had served its purpose remarkably well in the past, and he did not know of any efficient substitute. He set out in detail figures showing the much greater cost of repairing certain makes of cars as compared with others, intimating that the policy as to repairs and spare parts adopted by the manufacturers had considerable effect on this item. He further pointed out that an old car was just as capable of causing third party damage as a new one and said: "As repairs are not reduced by diminishing values and the vast majority of accidental claims are under £100, I suggest that for the purpose of premium rating the original catalogue price of the car, not its present value as assessed by the proposer, should be taken as the fixed value of that car during its lifetime; but in the case of total loss by fire or theft the market value only would be paid, as now".

After a detailed comparison of labor charges on various cars he continued, "The foregoing remarks and considerations lead me to suggest that the rate for accidental damage be entirely separate from the third party, fire and theft rate and that for each make of car there be an additional 'damage premium' based upon its construction and design (chassis and body), life, (wear, tear and depreciation) and cost of spares.

"Such a proposal may sound revolutionary and may be difficult of attainment. There would require to be an unanimity of purpose between the offices, as it is doubtful if any one office could compile such a schedule of premiums, and if it did, whether in competition it could carry them. A committee of engineers representing all the offices, would meet and consider what from the insurance companies' point of view under the above heading was the ideal car; they would then classify each make of car according as it corresponded to this ideal standard; the ideal would be No. 1 and Nos. 2, 3, and 4 would be applied as a car varied therefrom."

A further suggestion in regard to private cars was area rating, in regard to which he said: "Locality does affect private car claims experience, as owners in the country districts and the smaller provincial towns are not as prone to accidents as owners in the larger towns, cities and densely populated areas. Labor charges also are not so high in the country districts as in the large cities, because of the cost of living, overhead establishment charges, etc., so that it frequently costs more to effect a repair in a large town than it does for the same work in the country. From the third party aspect also a motorist in a town is more likely to injure a person occupying a high financial position in life than in the country, and we know the measure of damages claimed and awarded is largely governed by the injured person's station in life. Yet, speaking generally, no difference in premium is made between the owner of a car resident in London, Manchester or Birmingham and one in the heart of an agricultural county."

Aviation Trip Accident Policy

The United States Aviation Underwriters, the underwriting unit for the United States Aircraft Insurance Group, have made available an "Aviation Trip Accident Policy", which covers an aeroplane passenger for a single trip from the time of the take-off until arrival at destination. The policy is somewhat similar to the present railroad accident policy and provides a face indemnity of $5,000 for death by accident during the period covered and from the causes enumerated. In addition to the death benefits, the new aviation trip accident policy provides for a weekly indemnity when permanent disability results from any one of the hazards insured against.

Burglary Rates

Because crime conditions throughout the country have materially improved, a reduction in rates for burglary insurance covering mercantile open stocks has been found possible by the National Bureau of Casualty & Surety Underwriters. This reduction is based on the results of four years' statistical study of the experience of fifty-two companies writing burglary insurance that are connected with the Bureau.

In its official statement of this rate reduction, which was made effective February 11, 1929, the National Bureau says:

"Outstanding reductions are announced as follows: Fifty per cent. reduction for contractors engaged in the manufacturing of merchandise such as men's and women's wear for other concerns; 20 per cent. on men's and boys' clothing; 42 per cent. for manufacturers of men's and boys' caps and hats; 42 per cent. reduction for radio equipment and supplies; 42 per cent. reduction for musical instruments; 28 per cent. reduction for rubber tires and tubes; 28 per cent. reduction for automobiles and accessories.

"Rates on all merchandise have been reduced as follows in New York State: Twenty-eight per cent. reduction in Nassau, Suffolk, Rockland and Westchester Counties; 20 per cent. reduction in the Counties of Erie, Niagara, Albany and Onondaga; and 10 per cent. reduction in the Counties of Broome, Chemung, Monroe, Rensselaer and Oneida.

"Two important changes were announced by the National Bureau in the rates for mercantile safe burglary insurance which covers property contained in safes and vaults. The rates for the District of Columbia were increased 50 per cent., due to a striking increase in the number of burglaries. The rates for Erie County, New York, were reduced 39 per cent. This reduction followed a very favorable report in the cutting down in the number of burglaries. The rates for this form of insurance remain the same for New York City.

"The new rates have been approved by the insurance departments of the various states. An important change is announced in the method of rating large mercantile and manufacturing risks for paymaster robbery insurance, which covers the transportation of payroll funds. It is now permitted to rate, on an audit basis, such concerns as have a total annual payroll of not less than $2,500,000 for the preceding year. This means that at the end of the year the premium is figured on the actual amount of payroll distributed by the firms.

"The burglary insurance companies are publishing rates for certain new miscellaneous policies which have just been adopted. One of these is the fraud policy which is designed to protect the small merchant and give him a variety of insurance, in the total amount of $1,000, for an annual premium of $27.50. The merchants' protective policy also covers the small merchant and provides different coverages, in the total amount of $1,000, for an annual premium of $17.50. The church protective policy is designed to give all-round coverage to churches for an annual premium of $15. The fraternal protective policy is designed to cover fraternal orders and provides all-round coverage for an annual premium of $15.

"There is no line of insurance, say the bureau officials, in which the conditions change so rapidly as burglary insurance, and particularly close watch must be kept by the companies on this line if rates that are both fair to the insuring public and adequate for the companies are to be provided."

Free Newspaper Insurance in Great Britain

The inhabitants of the British Isles are being overwhelmed with free newspaper insurance. It is a feature of popular British journalism in many of the national and provincial daily newspapers to urge readers to "sign the coupon on page—" and thus insure themselves and their families, including children from 6 to 15, against most accidents that occur in everyday social and business life.

The cover includes railway passengers, and users of public road conveyances, (train, bus, cab, etc.) travelers by steamer, and accidents happening in elevators and escalators. Registered readers are also protected when traveling solely for pleasure in private motor cars and horse-drawn vehicles. Pedestrians are insured against being killed through accidental impact with a moving vehicle, or an animal harnessed thereto. (A disabled ex-service man in a self-propelled vehicle is deemed to be a pedestrian.)

Death and injury are also covered for registered readers engaged in amateur football, hockey, cricket, golf, tennis or lacrosse. Fatal accidents from drowning and flying are provided for and death resulting from an accident while the reader is at work, "following the course of his or her occupation, vocation or employment".

To provide death benefits from $25,000 ($50,000 in the case of married couples, although only one is a registered reader), to $10 a week for life, all that a person between the ages of 10 and 70 need do is write his name and address on a form provided. No other questions are asked except, with some newspapers, the news agent's name and address. This lucky individual wins a money prize every time one of his registered customers has a claim.

It seems that the newspapers are vieing with each other to pay most claims. One daily paper advertised recently that it had paid 44 claims in one day. Another states that in one day it sent out 100 checks as free personal accident benefits to readers. A Sunday newspaper boasts of paying a fatal claim to the dependents of a Royal Air Force officer killed when flying in the course of his duties. A competitor announces paying claims as the result of two pedal cyclists being killed.

One daily newspaper paid, through its insurance company, to claimants or their dependents, over $1,000,000 in 1928. Their policies cover in addition to fatal injury, benefits of from $15 to $25 per week for temporary total disablements resulting from specified accidents, and rent up to $10 in addition to other benefits.

Every newspaper having a free insurance scheme transacts its business with an insurance company—one insurance company one year, perhaps, and another the next. If the insurance companies make a heavy loss (and no one has heard of them yet making a profit on newspaper insurance) they are compensated (?) by the advertisement they get.

They have certainly paid many millions of dollars in claims since newspaper insurance was devised to increase circulations and advertising revenues. A laborer received $100,000 as a free newspaper accident insurance settlement when his family was killed in a railway smash. It is rumored that he had much pleasure in drinking himself to death.

How can this be called insurance? Surely it is a lottery, for there is no way the claims that might occur in any one year can be estimated in number or sum of money required to liquidate liability. It is nevertheless most helpful and has proved a Godsend to countless poor people.

Several weekly periodicals have included free personal accident insurance in their scheme to draw more readers. One journal, at least, offers free coverage against fire on its readers' household goods.

How do these schemes affect the insurance companies selling personal accident insurance? It appears that free personal accident insurance as granted by the newspapers and periodicals is a splendid advertisement for the naturally much superior class of personal accident protection sold by reputable insurance companies. One company doubled its income in one recent year for this class of business. The agents are selling more of these policies, and none of them complain of falling figures through the newspaper campaign—although most of them expected they would.

The newspapers have drawn attention to the value of personal accident insurance. As the insurance companies have never properly advertised the wares they sell in England, the insurance salesmen have cause to be grateful to the various publications for the free advertisement the agents get from free insurance.

Sometimes a prospect will say "I am insured by such and such a newspaper, why should I cover with you?" The agent points out that if he is a regular reader of the newspapers there can be no objection to his availing himself of free insurance schemes, but that these gifts should never take the place of a reliable insurance policy sold by the insurance offices. The cover under free insurance is, on the whole, totally inadequate, except in certain circumstances and conditions. This free insurance should never supplant sold insurance, but might be undertaken as cover additional to more complete and safe protection.

The bighearted British public regard newspaper insurance with a certain amount of suspicion, but as it is free—and it is human to want something for nothing—they take it. Because of their suspicion—largely founded on ignorance of insurance values, for newspaper schemes are generous enough under the circumstances—the people are not content with what they get for nothing, but only with what they have to pay for. It is a matter of elemental psychology that most of us appreciate more fully the things we buy, rather than the gifts of any but those for whom we have a tender spot in our hearts. (The Insurance Field, July 11, 1929.)

Requirements for Actuarial Personnel in France

The acturial service bureau of the French Ministry of Labor, Hygiene, Social Welfare and Prevention organized a competitive examination with the view to obtaining actuarial graduates for the National Office of Social Insurance.

This examination took place during May and June, 1929, and was open to candidates of both sexes and of French nationality. The candidates were required to be more than 23 and under 30 years of age. Male candidates must have complied with their military obligations. There were three vacancies in the Bureau.

The examination covered mathematics with practical application to statistics, insurance and social economics; fundamentals of administrative and commercial law; labor legislation and welfare; political, economic and social history of France since 1848, and the geography of France.

The information was obtained from the Actuarial Service Bureau of the Ministry of Labor, 127 rue de Grenelle, Paris.

Credit Insurance in Foreign Lands

In Holland.—The two Dutch credit insurance companies, the Nederlandsche Creditverzekering Maatschappij, Amsterdam (belonging to the Group Trade Indemnity Hermes) and the Vaterlandsche Assurantie Maatschappij, Rotterdam (Hermes Fleet) have increased their premium income by 50 per cent. Both policies are formed along the lines of the "Hermes-Elberfeld" policy forms. The preferred method is a declaration policy, which seems to meet the requirements of the Dutch trade in the best manner. The Nederlandsche writes credit insurance exclusively, while the Vaterlandsche also writes other lines, though the annual report states that the chief premium income is derived from credit insurance.

The Government Export Credit Insurance, which is in force since January 30, 1923, has met with no success. This is due to the fact that the guarantee covers only 40 per cent. of the actual loss and also to the fact that the work is done in a bureaucratic and complicated manner.

In Belgium.—The Government Export Credit Insurance, introduced by the law of August 7, 1921, had little success, due to the publicity which each transaction was given. Through an additional law of August, 1926, the premiums have been reduced by more than 50 per cent. and since then the business has grown. Up to September, 1927, guarantees up to 55 per cent. of the invoice value have been granted for 300,000,000 francs exports, a large part of which covers exports to Russia. A recent law has increased the government fund from 250,000,000 francs to 600,000,000.

There is no private credit insurance in Belgium. The Vaderlandsche Maatschappij of Rotterdam has a branch in Brussels. The Societe Generale de Belgique has argued for a national credit insurance company and the congress of Chambers of Commerce in Charleroi in 1926 and Veriviers in 1928 have sponsored such a step, so that its realization may be looked forward to in a not-too-distant future. A commission has already been appointed and is preparing the ground.

In Denmark. — The Norden Forsikringsaktieselskabet of Copenhagen, with a capital of 3,000,000 Kroner (U. S. par value

26.8 cents per Krone), writes credit insurance on a small scale. It belongs to the Vaterlandische and Rhenania of Elberfeld (Germany) fleet. The Government has in 1922 created a kind of export credit insurance in connection with the Guaranty Trust Company of New York, which, in turn, acts for a number of American banks. Under this agreement export drafts up to 45,000,000 Kroner are rediscounted under the guaranty of the Danish Government; as a rule, 65 per cent. to 75 per cent. of invoice value is the basis for these guarantees. For about a year Danish insurance companies are discussing the founding of a special credit insurance company. The needed capital is secured up to 80 per cent. and it appears that the contemplated company will soon become a fact.

In Sweden.—The Nya Forsakringsaktiebolaget of Stockholm writes pure credit insurance since 1927. Its business has been transferred early in 1928 to the newly-founded Svenska Kredit Forsakringsaktiebolaget of Stockholm, which company has a fully paid capital of 1,000,000 Kroner (U. S. par value 26.8 cents per Krona) and will transact international business in close connection with the Trade Indemnity Hermes. This company began operations in the summer of 1928.

The Fylgia of Stockholm did in 1927 about the same business as in 1926. In 1927 heavy losses were incurred, but many of these have been reduced by later recoveries.

During recent weeks the Gota of Stockholm, Atlantica of Goteborg and Gauthiod of Goteborg have founded the Almanna Kreditforsakrings Aktiebolaget in Stockholm with a capital of 1,000,000 Kroner, which, however, has not as yet begun writing business.

In Czechoslovakia.—The Kreditversicherungsanstalt, Ltd., of Prague, belonging to the "Hermes" group, has taken up credit insurance during the last year, but results seem to have been unsatisfactory. A Government Export Insurance Institute along German lines is contemplated. A committee has been appointed to study the subject and work out a plan which might be used as the basis of such a government institution.

In Poland.—A Government Export Credit Insurance Institute with a government participation of 6,000,000 Zloty (U. S. par 11.22 cents per Zloty) is contemplated. The chief purpose is to boost export to Russia and the Baltic Succession States (Latvia, Estland, etc.) A threefold participation is planned: government, private insurance companies and other private interested parties. This foundation may become a fact in the near future.

In Argentina.—The Buenos Aires Compania Argentina de Seguros with a capital of 4,000,000 Pesos (1.28 paid up) has recently taken up credit insurance, which business so far is of a very limited importance. The company also writes fire, transport and accident business.

In Japan.—The Government has submitted to the Parliament a draft of a law regarding export credit insurance. It is based on the German credit insurance and devised to favor export to Central and South America, Balkan countries, Africa and Russia. Much of the material in the foregoing has been obtained from the Wirtschaftidienst.

Conference of Indian Insurance Companies

The first conference of the Indian insurance companies was held at Bombay, India, on April 4 and 5, 1928. The purpose of this conference was to unite the companies in order that they might work together in their efforts to direct the insurance business of the country toward these companies and away from foreign organizations. During its first year of existence the conference carried on an intensive propaganda on behalf of Indian insurance companies with the result that a great deal of interest in insurance has been created in the public mind.

Almost all Indian companies transacting life or other branches of the insurance business have joined this conference. There are now 46 members on its rolls. The fact that the Indian insurance companies doing business in various parts of India took the trouble and expense to send their representatives to attend this conference, combined with the fact that almost all the distinguished industrialists and merchant princes of Bombay have taken more than ordinary interest in the proceedings of the conference by personally attending and thereby contributing to its success, would prove that the thinking mind of India is wholeheartedly with the Indian insurance companies.

Personal Notes

Harmon T. Barber is now Assistant Actuary of the Casualty Actuarial Department of The Travelers Insurance Company in Hartford.

Henry Collins is now Deputy Manager of the Ocean Accident & Guarantee Corporation in New York.

Robert Riegel, formerly Professor of Insurance at the University of Pennsylvania is now Professor of Statistics and Insurance at the University of Buffalo in Buffalo.

Joseph P. Gibson, Jr., previously Assistant General Manager of the Builders and Manufacturers Mutual Casualty Company is now Manager, Excess Underwriters, Inc. in New York.

John L. Sibley is now Assistant Secretary of the United States Casualty Company in New York.

Edward S. Skillings has left the Hartford Accident & Indemnity Company and is with Woodward, Fondiller & Ryan, Consulting Actuaries in New York.

William Leslie has resigned as General Manager of the National Council on Compensation Insurance to become Executive Vice-President of the Associated Indemnity Corporation in San Francisco.

Joseph Raywid is now Vice-President and Actuary of the Library Bureau Recording and Statistical Corporation in New York.

Armand Sommer is now Manager of the Accident and Health Department of the Southern Surety Company of New York in New York.

Louis H. Mueller is now President of the Varney Airlines, Inc. in San Francisco.

LEGAL NOTES

BY

SAUL B. ACKERMAN
(OF THE NEW YORK BAR)

ACCIDENT

Date of Accident:—[Lewis *vs.* Preferred Acc. Inc. Co. of N. Y. (275 P. 707), Mar. 27, 1929.]

The insured was infected through food or drink with typhoid germs. Some two or three weeks later he was disabled as a result of fever. An action was brought to recover for the disability under an accident policy which contained the following provision: "Or, if such bodily injury . . . shall directly, independently, and exclusively of all other causes and from date of accident wholly and continuously disable . . . the company will pay . . . ." The insured contended that the bodily injury which he suffered was a result of an accident—the drinking of the water. The insurance company insisted that it agreed to pay providing there was disability "from the date of the accident," and since the insured became disabled some two or three weeks after the "accident" it was not liable.

The Supreme Court of Washington upheld the defense. The court said: ". . . it is specifically stated that there can be no recovery unless 'from the date of the accident' there was complete and continuous disability. This language seems so plain as to not call for a construction. Its meaning is evident. It appears from the facts stated that the appellant did not become ill for more than two weeks after he was infected with the typhoid bacilli. He was not therefore from the date of the accident wholly and continuously disabled. The facts do not bring him within the plain language of the policy.

"It is undoubtedly true that, if the bodily injury results substantially from the date of the accident, the requirement of the policy is satisfied. It cannot be said that a disability which arose more than two weeks after the accident, and of which the insured had no knowledge thereof until three weeks thereafter, occurred from the date of the accident."

Automobile

Settlement:—[Schleider *vs.* Maryland Casualty Co. 234 N.Y.S. 144.]

An action was commenced against the insured to recover damages for injuries sustained as a result of the negligent operation of an automobile. The insured died during the pendency of the action, and consequently the action ended. The plaintiff and the casualty company did not know of the death, however, and four months after the death settled the action for $3500. The casualty company demanded return of the $3500.

The court held that the company was entitled to a return of the money and said: "In cases where the alleged cause of action is of doubtful validity a settlement will be enforced. It is admitted by all parties to this action, however, that the defendant in the negligence action had been dead for several months when the settlement was made. Therefore, there was nothing to settle. The settlement was made upon the assumption that the defendant was alive.

"There being no question of fact, the money paid by mistake should be returned to the casualty company. Ordinary fair dealing would compel such a course.

"In the case of Hathaway v. Delaware County, 185 N.Y. 368, 78 N.E. 153, the court held that money paid under a mistake of fact may be recovered back, however negligent the party paying may have been in making the mistake, unless the payment has caused such a change in the position of the other party that it would be inequitable to require him to refund, and in such a casethe burden of proving that fact rests upon the party resisting the payment. In this case the parties have not changed their position. The money is on deposit with the city chamberlain and may be returned."

Burglary

Books of Account:—[Licht *vs.* New York Indemnity Co. (164 N.E. 910), Dec. 31, 1928.]

The plaintiff, a dealer in furs, procured from the defendant a policy upon the furs, insuring the plaintiff against a loss thereof through burglary. He asserted that about six months later his shop was entered by burglars and furs of a value exceeding $17,000 were removed therefrom.

The policy provided "that the company shall not be liable . . . unless books and accounts are kept by the assured and are kept in such manner so that the exact amount of the loss can be accurately determined therefrom by the company." The defendant asserted that the provisions of the policy in reference to the keeping of books were not observed by the plaintiff.

It appeared that the items of garments purchased by the plaintiff showed valuations above the actual cost of the garments; indeed, above the sales price of garments which were sold. The purpose of the exaggeration was to enable the plaintiff to assert to customers that he was selling the garments below cost. The items of skins purchased by the plaintiff showed the actual cost of the skins which were used in garments made up by the plaintiff. These items were not intended to be shown to customers, for customers would not know, unless informed by the plaintiff, what particular skins were used in the manufacture of a particular garment. Without such information and information as to the cost of manufacture, a customer could not determine the cost of any garment manufactured by the plaintiff. Neither could an accountant examining the books of the plaintiff.

The jury chose to believe the plaintiff's testimony in regard to the correct invoices which were not reflected in the books of account. From a judgment for the plaintiff the insurance company appealed, alleging that the plaintiff had failed to keep the proper books of account.

The Court of Appeals of New York reversed the judgment of the court below. The court said:

"It has been said that the 'courts should not take a narrow and restricted view of the clause relative to the keeping of books and account to defeat a claim otherwise unassailable.'

"We accept that policy as a guiding principle. Within the meaning of the contract of insurance, honest books and vouchers, though the entries be made in a crude, unscientific manner and require explanation and even supplement by oral statement, may yet supply the basis for an accurate estimate of the loss. At least, however, the books must be intended to reflect truly the cost or value of the goods insured. Books intended to deceive are not in any true sense books of account.

"The plaintiff agreed to keep books and accounts from which the loss might be computed. He chose to keep his books dishonestly, to deceive his customers. Books so kept constitute no basis for computation of any loss. The same policy, which requires the courts to hold that the terms of the contract of insurance are complied with by a reasonable and honest effort to keep accurate books and accounts, requires also a decision that dishonest books intended to deceive customers or creditors are insufficient for that purpose."

Compensation

Abandonment of Employment:—[Babington *vs.* Yellow Taxi Corp. (250 N.Y. 14, 164 N.E. 726), Dec. 31, 1928.]

One employed as a chauffeur by a taxicab company met his death through accident while driving one of its cabs. It appeared that a police officer jumped on the running board and ordered the driver to chase another car in order to arrest its occupant. Suddenly another vehicle cut across the path. The result was a collision from which death ensued.

The widow of the deceased brought an action to recover compensation. The taxi company contended that the driving of the taxicab at the order of the police officer was such a departure from the course of duty as to constitute an abandonment of employment. The following statute was cited to show that when the deceased gave aid to the police officer he became himself a member of the police department, and no longer was an employee of the defendant taxi company. The statute provides:

"A person, who, after having been lawfully commanded to aid an officer in arresting any person, or in re-taking any person who has escaped from legal custody, or in executing any legal process, willfully neglects or refuses to aid such officer is guilty of a misdemeanor."

The Court of Appeals of New York held that: "From the fact that Babington was in charge of the car at the request of the employer, the inference would follow, in the absence of evidence to the contrary, that he was in the performance of his duty at the time of the disaster. (Cases cited.) We are to say whether that inference must be held to have been neutralized by evidence that he was chasing an escaping criminal by order of a policeman.

". . . The law did not limit itself to imposing upon the manhood of the country a duty to pursue. To make pursuit effective, there were statutes in those early days whereby a man was subject to a duty to provide himself with instruments sufficient for the task . . . . Thus, for fifteen pounds of lands and goods there shall be kept 'an Hanberke (a Breastplate) of Iron, a Sword, a Knife, and an Horse.' We may be sure that the man who failed to use his horse, and who would only go, afoot, would have had to answer to the king.

"The horse has yielded to the motorcar as an instrument of pursuit and flight. The ancient ordinance abides as an interpreter of present duty. Still, as in the days of Edward I, the citizenry may be called upon to enforce the justice of the state, not faintly and with lagging steps, but honestly and bravely and with whatever implements and facilities are convenient and at hand. The incorporeal being, Yellow Taxi Corporation, would have been bound to respond in that spirit to the summons of the officer if it had been sitting in the driver's seat. In sending Babington upon the highway, it knew or is chargeable with knowledge that man and car alike would have to answer to the call. An officer may not pause to parley about the ownership of a vehicle in the possession of another when there is need of hot pursuit. In so far as the danger of pursuit was a danger incidental to the management of the car, it was one of the risks of the employment, an incident of the service, foreseeable, if not foreseen, and so covered by the statute."

Credit Insurance

Directed Shipment:—[Weiner *vs.* American Credit Indemnity Co. of N.Y. (222 N.W. 699), January 7, 1929.]

An action was brought to recover on a policy of credit insurance issued by the defendant company, guaranteeing plaintiff against loss due to insolvency of his debtors during one year thereafter, resulting from bona fide sales of merchandise delivered to firms having in the latest published book of the Bradstreet Mercantile agency a commercial rating and its accompanying credit rating as tabulated in the policy.

There were two corporations of the same name, one an Illinois corporation and the other an Ohio corporation. One person was the president of both companies and the stock of the Ohio corporation was all owned by the Illinois corporation. Both corporations became insolvent. The Illinois croporation alone had the rating required by the terms of the policy.

Plaintiff's action is predicated upon sales claimed to have been made to the Illinois corporation. The facts indicated that the merchandise was purchased in the name of the Illinois corporation and, pursuant to their orders, shipped directly to the Ohio corporation. The defendant company requested the court to charge that the plaintiff could not recover unless he shipped the merchandise to the Illinois corporation and not to the Ohio corporation, and that he also made delivery to the Illinois corporation and not to the Ohio corporation. The defendant company appealed from the court's refusal so to charge.

The Supreme Court of Michigan permitted a recovery under the policy and held the requested charge improper. The court said:

"The court clearly stated in the instruction heretofore quoted that, if the sales were made to the Ohio corporation, and the goods shipped and delivered to it, plaintiff could not recover. If the orders were received from, and the sales made to, the Illinois corporation, its liability would in no way be affected by the direction given to ship to the Toledo plant. It is not unusual in business for orders to direct delivery to be made to a party other than the one given the order, and a delivery so made is in legal effect a delivery to the party ordering the shipment."

Fidelity

Compromise:—[People's Loan & Savings Co. *vs.* Fidelity & Casualty Co. (147 S.E. 171), February 21, 1929.]

The plaintiff obtained from the defendant insurance company a policy of fidelity insurance, insuring against defalcation by the employees of the insured. It appeared that the embezzler of the plaintiff's funds had made a note payable to the plaintiff but had not withdrawn the money which he apparently had borrowed under the note. The purpose of this transaction was to cover up the defalcation he had previously made. The plaintiff contended that it was entirely innocent of the scheme employed by the embezzler. The insurance company denied liability on the ground that the plaintiff and the embezzler had compromised the defalcation by the giving of the note by the embezzler to the plaintiff.

The Court of Appeals of Georgia permitted a recovery under the policy. The court said:

"The mere fact that the employee gave a note to the employer for a certain amount of money, and, as appears from the auditor's report afterwards made, after an examination of the employee's accounts, that no money was actually withdrawn from the employer by the employee, but that this transaction was 'used to cover' the employee's 'shortages,' where it does not appear that when the note was given the employer knew of any shortage, or that the note was accepted to cover up any shortage, is insufficient to show a settlement or compromise between the employer and employee of any shortage or loss covered by the policy. Therefore this transaction does not void the policy under the provision therein to the effect that, if the employer settles or compromises with the employee for any loss insured against by the policy without the insurer's consent to the settlement or compromise, the policy thereby becomes void."

OBITUARY

SAMUEL DEUTSCHBERGER
1871-1929

Samuel Deutschberger, connected for more than twenty years with the New York State Insurance Department, died in New York City January 18, 1929. At the time of his death he was chief of the rating bureau of the department. In his passing the insurance fraternity lost a loyal friend—one in whom warm humanity blended with high technical ability.

His death came after only four days of illness from cerebral meningitis. The funeral service, held in Mecca Temple, was attended by a large number of insurance company executives, rating organization heads, the staff of the New York State Insurance Department and many others in the insurance business, as well as many personal friends. Rabbi Stephen S. Wise delivered a moving and impressive address, eulogizing the character and personality which had so endeared Mr. Deutschberger to all who knew him.

Mr. Deutschberger came from the Federal Customs Service to the New York State Insurance Department in 1908 as an assistant examiner. Three years later he was appointed examiner, and in 1913 was made chief examiner in charge of the Underwriters' Associations Bureau. He became a fellow of the Casualty Actuarial Society May 19, 1915. In November, 1920, he was made chief examiner of fire insurance companies, and in August, 1925, he became chief of the rating bureau with supervision over rates in all lines of insurance subject to the provisions of the rating law.

For many years Mr. Deutschberger conducted exhaustive researches into the field of rate making and rate administration, especially with regard to fire insurance. This work brought him into close contact with fire insurance company executives and rating organization managers, all of whom paid high tribute to his deep knowledge of the subject.

As his duties often brought him face to face with legal questions, Mr. Deutschberger early became interested in the law and in 1926 he decided to study for admission to the bar. Applying to this task the same energy and determination which he displayed in his insurance department duties, he passed the final bar examinations only a short time before his death.

Mr. Deutschberger was universally honored for his integrity and skill in his profession, and was beloved for the spirit of sympathetic friendliness which he displayed in his work. Those who knew him intimately had frequent occasion to observe his unusual unselfishness, his ready sense of humor, and his self-sacrificing devotion to the cause of helping others.

CASUALTY ACTUARIAL SOCIETY

May 24, 1929

THE COUNCIL

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	William F. Roeber	1931
	Winfield W. Greene	1931
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†Terms expire at the annual meeting in November of the year given.

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ABSTRACT FROM THE MINUTES OF THE MEETING, MAY 24, 1929.

The semi-annual (thirty-second regular) meeting of the Casualty Actuarial Society was held at the Hotel Bond, Hartford, Connecticut, on Friday, May 24, 1929.

President Moore called the meeting to order at 10:20 A. M., daylight saving time. The roll was called showing the following forty-seven Fellows and twenty-six Associates present:

FELLOWS

Bailey	Graham, C. M.	Morris
Barber	Greene	Mullaney
Benjamin	Hammond	Page
Blanchard	Haugh	Perkins
Brown, F. S.	Hobbs	Pinney
Burling	Hunt	Roeber
Cogswell	Kelton	Ryan
Comstock	King	Senior
Corcoran	Linder	Smith, C. G.
Dorweiler	Marshall	Sullivan
Elston	Masterson	Tarbell
Fallow	Matthews	Valerius
Flynn	McManus	Van Tuyl
Fondiller	Meltzer	Waite, A. W.
Fredrickson	Michelbacher	Wheeler, R. A.
Ginsburgh	Moore	

ASSOCIATES

Ainley	Hall, H. L.	Skelding
Bateman	Hall, L. L.	Smith, A. G.
Black, N. C.	Jackson, E. T.	Spencer
Cahill	Marsh	Voogt
Constable	Montgomery, J. C.	Waite, H. V.
Davies	Pennock	Wilkinson
Fitzgerald	Perryman	Williamson
Gildea	Poissant	Wood, M. J.
Glenn	Skillings	

President Moore read his presidential address.

The minutes of the meeting held November 23, 1928 were approved as printed in the *Proceedings*.

The Secretary-Treasurer read the report of the Council and upon motion it was adopted by the Society. Charles A. Wheeler and George A. Cowee had been enrolled as Associates without examination.

The Council approved the report of the Educational Committee, Edwin W. Kopf, Chairman. The syllabus of examinations in the new fifth edition of the Recommendations for Study is the same as that appearing in the fourth edition; the revised readings for the new edition will be included in the next number of the *Proceedings*.

Applications to take the examinations of the Society must be received by the Secretary-Treasurer before the fifteenth day of March of each year and the examinations will be held on the last Wednesday and Thursday during the month of May, commencing with 1930.

The President announced the death, since the last meeting of the Society, of Samuel Deutschberger, Fellow, and the memorial notice appearing in this Number was thereupon read.

The following topics for which speakers had been selected were informally discussed:

Automobile Merit Rating
Trend in Automobile Public Liability Experience
Excess Compensation Insurance for Self-Insurers

Recess was taken until 2:15 P. M.

By invitation of the Program Committee, Mr. Terence F. Cunneen, Manager, Insurance Department, Chamber of Commerce of the United States of America, Washington, D. C., addressed the Society on "The Relation of the Insurance Department of the Chamber of Commerce of the United States of America to the Casualty Insurance Business." This address appears in this Number of the *Proceedings*.

The papers printed in this Number were read or presented.

The papers read at the last meeting of the Society were discussed.

The members were the guests of the Hartford Companies at the Farmington Country Club at dinner on the evening of the meeting and for golf and lunch thereafter on the next day. By a rising vote of thanks the members expressed their appreciation of the hospitality of the Hartford Companies.

Upon motion, the meeting adjourned at 4:30 P. M. daylight saving time.

INDEX TO VOLUME XV

CASUALTY ACTUARIAL SOCIETY

1929 YEAR BOOK

Officers, Council and Committees

List of Fellows and Associates

List of Ex-Presidents and Ex-Vice-Presidents

List of Deceased Members

List of Students

Constitution and By-Laws

Examination Requirements

1928 Examination Questions

(*Corrected to February 1, 1929*)

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No. 8

CASUALTY ACTUARIAL SOCIETY

NOVEMBER 23, 1928

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William M. Corcoran

MEMBERSHIP OF THE SOCIETY, NOVEMBER 23, 1928

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	
May 23, 1924	Bailey, William B., Economist, Travelers Insurance Co., 700 Main St., Hartford, Conn.
*Nov. 20, 1924	Barber, Harmon T., Travelers Insurance Co., 700 Main St., Hartford, Conn.
†	Benjamin, Roland, Treasurer, Fidelity & Deposit Co., Baltimore, Md.
†	Black, S. Bruce, President, Liberty Mutual Insurance Co., Park Square Building, Boston, Mass.
Apr. 20, 1917	Blanchard, Ralph H., Professor of Insurance, School of Business, Columbia University, New York.
May 24, 1921	Bond, Edward J., Jr., First Vice-President, Maryland Casualty Co., Baltimore, Md.
May 19, 1915	Bradshaw, Thomas, Vice-President and General Manager, Massey-Harris Co., Limited, 915 King St., Toronto, Canada; President, North American Life Assurance Co. of Canada, Toronto, Canada.
†	Breiby, William, Consulting Actuary, Fackler & Breiby, 25 Church St., New York.
*Nov. 18, 1927	Brown, F. Stuart, Statistician, Norwich Union Indemnity Co., 75 Maiden Lane, New York.
Oct. 22, 1915	Brown, Herbert D., Chief of U. S. Efficiency Bureau, 408 Winder Building, 17th and F. Sts., N. W., Washington, D. C.
Oct. 22, 1915	Brown, William H., Second Vice-President and Secretary, Columbian National Life Insurance Co., 77 Franklin St., Boston, Mass.
June 5, 1925	Brosmith, William, Vice-President and General Counsel, Travelers Insurance Co. and Travelers Indemnity Co., 700 Main St., Hartford, Conn.
†	Buck, George B., Consulting Actuary for Pension Funds, 25 Spruce St., New York.
May 26, 1916	Bucklin, Walter S., President, National Shawmut Bank, 40 Water St., Boston, Mass.
†	Budlong, W. A., Superintendent of Claims, Commercial Travelers Mutual Accident Association, Utica, N. Y.
Apr. 20, 1917	Burhop, William H., Assistant Manager, Employers Mutual Liability Insurance Co., Wausau, Wis.
*Nov. 23, 1928	Burling, William H., Travelers Insurance Co., 700 Main St., Hartford, Conn.

FELLOWS

Date Admitted	
Feb. 19, 1915	Burns, F. Highlands, President, Maryland Casualty Co., Baltimore, Md.
†	Cammack, Edmund E., Vice-President and Actuary, Aetna Life Insurance Co., Hartford, Conn.
†	Carpenter, Raymond V., Actuary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
*Nov. 15, 1918	Coates, Barrett N., Coates and Herfurth, Consulting Actuaries, 354 Pine St., San Francisco, Calif.
*Nov. 17, 1922	Coates, Clarence S., Federal Mutual Liability Insurance Co., Insurance Center Building, San Francisco, Calif.
Oct. 27, 1916	Cogswell, Edmund S., Second Deputy Commissioner of Insurance, State House, Boston, Mass.
Feb. 19, 1915	Collins, Henry, Assistant Manager, Ocean Accident & Guarantee Corporation and Vice-President, Columbia Casualty Co., 1 Park Ave., New York.
*Nov. 23, 1928	Comstock, W. Phillips, Statistician, London Guarantee and Accident Co., Ltd., 55 Fifth Ave., New York.
†	Copeland, John A., Consulting Actuary, Candler Building, Atlanta, Ga.
*Nov. 18, 1925	Corcoran, William M., Office of S. H. and Lee J. Wolfe, Consulting Actuaries, 165 Broadway, New York.
†	Cowles, Walter G., Vice-President, Travelers Insurance Co., 700 Main St., Hartford, Conn.
†	Craig, James D., Actuary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
*Nov. 19, 1926	Crane, Howard G., Assistant Comptroller, General Reinsurance Corporation, 80 John St., New York.
*Nov. 20, 1924	Darkow, Angela C., Independence Indemnity Co., Independence Bldg., Philadelphia, Pa.
*Nov. 18, 1927	Davis, Evelyn, M., Office of Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
†	Dawson, Alfred B., Miles M. Dawson & Son, 36 W. 44th St., New York.
†	Dawson, Miles M., Consulting Actuary and Counsellor at Law, 36 W. 44th St., New York.
†	DeKay, Eckford, C., President, Industrial Service Corporation, 84 William St., New York.
†	Dearth, Elmer H., Detroit Athletic Club, Box 38, Detroit, Mich.
May 19, 1915	Deutschberger, Samuel, Actuary, New York Insurance Department, 165 Broadway, New York. (Deceased January 18, 1929.)
*Nov. 17, 1920	Dorweiler, Paul, Actuary, Accident and Liability Department, Aetna Life Insurance Co., Hartford, Conn.
†	Dublin, Louis I., Statistician, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
May 19, 1915	Dunlap, Earl O., Assistant Actuary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
†	Egbert, Lester D., Director, Brown, Crosby & Co., Inc., Insurance Brokers, 96 Wall St., New York.
*Nov. 17, 1922	Elston, James S., Assistant Actuary, Life Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.

FELLOWS

Date Admitted	
†	Epsteen, Saul R., 232 Coronado Building, Denver, Colo.
†	Fackler, Edward B., Consulting Actuary, Fackler & Breiby, 25 Church St., New York.
†	Fallow, Everett S., Actuary, Accident Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.
†	Farrer, Henry, Assistant Secretary, Independence Companies, Independence Building, Philadelphia, Pa.
Feb. 19, 1915	Fellows, Claude W., President, Associated Indemnity Corporation, Associated Fire & Marine Insurance Co., Associated Insurance Fund, Inc., Associated Insurance Building, 332 Pine St., San Francisco, Calif.
Feb. 19, 1915	Flanigan, James E., Agency Manager, Bankers Life Co., 225 Broadway, New York.
†	Flynn, Benedict D., Secretary, Travelers Insurance Co., 700 Main St., Hartford, Conn.
Feb. 19, 1915	Fondiller, Richard, Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
†	Forbes, Charles S., Treasurer, Smyth, Sanford and Gerard, Inc., Insurance Brokers, 68 William St., New York.
May 26, 1916	Frankel, Lee K., Second Vice-President, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
†	Franklin, Charles H., Secretary, Continental Casualty Co., 910 South Michigan Ave., Chicago, Ill.
*Nov. 18, 1927	Fredrickson, Carl H., Actuary, Canadian Automobile and Casualty Underwriters Association, 330 Bay St., Toronto, Canada.
Feb. 25, 1916	Froggatt, Joseph, President, Joseph Frogatt & Co., Insurance Accountants, 74 Trinity Place, New York.
†	Furze, Harry, Treasurer, Globe Indemnity Co., Washington Park, Newark, N. J.
Feb. 19, 1915	Garrison, Fred S., Assistant Secretary, Travelers Indemnity Co., 700 Main St., Hartford, Conn.
*Nov. 20, 1924	Ginsburgh, Harold J., American Mutual Liability Insurance Co., 142 Berkeley St., Boston, Mass.
May 19, 1915	Glover, James W., Professor of Mathematics and Insurance, University of Michigan, 620 Oxford Road, Ann Arbor, Mich.
†	Goodwin, Edward S., Goodwin-Beach & Co., Brokers, 64 Pearl St., Hartford, Conn.
†	Gould, William H., Consulting Actuary, 75 Fulton St., New York.
*Nov. 19, 1926	Graham, Charles M., Assistant Actuary, State Insurance Fund, 432 Fourth Ave., New York.
Oct. 22, 1915	Graham, George, Vice-President, Central States Life Insurance Co., 3663 Lindell Blvd., St. Louis, Mo.
Oct. 22, 1915	Graham, Thompson B., Assistant Secretary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
†	Graham, William J., Vice-President, Equitable Life Assurance Society, 393 Seventh Ave., New York.
May 25, 1923	Granville, William A., Director of Publications, Washington Fidelity National Insurance Co., 1607 Howard St., Chicago, Ill.

FELLOWS

Date Admitted	
†	Greene, Winfield W., Comptroller, General Reinsurance Corporation, 80 John St., New York.
†	Hamilton, Robert C. L., Comptroller, Hartford Accident & Indemnity Co., Hartford, Conn.
†	Hammond, H. Pierson, Assistant Actuary, Life Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.
†	Hansen, Carl M., President, International Reinsurance Corporation, Pacific Finance Bldg., Los Angeles, Calif.
Oct. 27, 1916	Hardy, Edward R., Assistant Manager, New York Fire Insurance Exchange, 85 John St., New York.
Oct. 22, 1915	Hatch, Leonard W., Member, State Industrial Board, 124 East 28th St., New York.
*Nov. 19, 1926	Haugh, Charles J., Jr., Assistant Actuary, National Bureau of Casualty & Surety Underwriters, 1 Park Ave., New York.
Nov. 17, 1920	Heath, Charles E., Vice-President and Secretary, Standard Surety & Casualty Company of New York, 80 John St., New York.
Nov. 21, 1919	Henderson, Robert, Vice-President and Actuary, Equitable Life Assurance Society, 393 Seventh Ave., New York.
May 17, 1922	Heron, David, Secretary and Chief Statistician, London Guarantee & Accident Co., Ltd., 20 Lincoln's Inn Fields, London, W. C. 2, England.
Oct. 22, 1915	Hess, Herbert, Herbert Hess & Co., Public Accountants and Auditors, 120 Broadway, New York.
†	Hillas, Robert J., President, Fidelity & Casualty Co., 92 Liberty St., New York.
Nov. 15, 1918	Hinsdale, Frank W., Secretary, Workmen's Compensation Board, Vancouver, B. C., Canada.
May 23, 1924	Hobbs, Clarence W., Special Representative of the National Convention of Insurance Commissioners, National Council on Compensation Insurance, 151 Fifth Ave., New York.
Nov. 19, 1926	Hodges, Charles E., President, American Mutual Liability Insurance Company and Allied American Mutual Automobile Insurance Co., 142 Berkeley St., Boston, Mass.
Oct. 22, 1915	Hodgkins, Lemuel G., Secretary, Massachusetts Protective Association, Worcester, Mass.
†	Hoffman, Frederick L., Consulting Statistician, Prudential Insurance Co.; Research Consultant, Babson Institute, Wellesley Hills, Mass.; Director of Research, Aviation Business Bureau, Inc., 72 Wall St., New York.
Oct. 22, 1915	Holland, Charles H., President, Independence Indemnity Co., Independence Building, Philadelphia, Pa.
†	Hughes, Charles, Auditor and Actuary, New York Insurance Department, 165 Broadway, New York.
†	Hunt, Burritt A., Assistant Secretary, Accident & Liability Department, Aetna Life Insurance Co., Hartford, Conn.
†	Hunter, Arthur, Second Vice-President and Chief Actuary, New York Life Insurance Co., 51 Madison Ave., New York.
Nov. 18, 1921	Hutcheson, William A., Second Vice-President and Actuary, Mutual Life Insurance Co., 32 Nassau St., New York.

FELLOWS

Date Admitted	
Feb. 25, 1916	Jackson, Charles W., Actuary, Postal Life Insurance Co., 511 Fifth Ave., New York.
May 19, 1915	Johnson, William C., Vice-President, Massachusetts Protective Association, Worcester, Mass.
Nov. 23, 1928	Jones, F. Robertson, Secretary-Treasurer, Workmen's Compensation Publicity Bureau, Association of Casualty and Surety Executives, Bureau of Personal Accident and Health Underwriters, International Association of Casualty and Surety Underwriters and Committee of Nine on "Financial Responsibility for Automobile Accidents," 1 Park Ave., New York.
*Nov. 19, 1926	Kelton, William H., Assistant Actuary, Life Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.
†	King, Walter I., Vice-President, Connecticut General Life Insurance Co., 55 Elm St., Hartford, Conn.
*Nov. 21, 1919	Kirkpatrick, A. Loomis, Continental Casualty Co., 910 South Michigan Ave., Chicago, Ill.
†	Kopf, Edwin W., Assistant Statistician, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
Nov. 23, 1928	Kulp, C. A., Professor of Insurance, University of Pennsylvania, Logan Hall, 36th St. & Woodland Ave., Philadelphia, Pa.
Feb. 19, 1915	Laird, John M., Vice-President, Connecticut General Life Insurance Co., 55 Elm St., Hartford, Conn.
Nov. 17, 1922	Lawrence, Arnette R., Special Deputy Commissioner of Banking and Insurance, 1203 Military Park Building, 60 Park Place, Newark, N. J.
†	Leal, James R., Vice-President and Secretary, Interstate Life and Accident Co., Interstate Building, 540 McCallie Ave., Chattanooga, Tenn.
†	Leslie, William, General Manager, National Council on Compensation Insurance, 151 Fifth Ave., New York.
*Nov. 20, 1924	Linder, Joseph, Office of Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
Nov. 18, 1921	Little, James F., Associate Actuary, Prudential Insurance Co., Newark, N. J.
Nov. 23, 1928	Lunt, Edward C., Vice-President, Great American Indemnity Co., 1 Liberty St., New York.
Feb. 19, 1915	Maddrill, James D., Consulting Actuary, 351 West 42nd St., New York.
†	Magoun, William N., General Manager, Massachusetts Rating and Inspection Bureau, 80 Broad St., Boston, Mass.
*Nov. 23, 1928	Marshall, Ralph M., National Council on Compensation Insurance, 151 Fifth Ave., New York
*Nov. 18, 1927	Masterson, Norton E., Actuary, Hardware Mutual Casualty Co., Stevens Point, Wis.
*Nov. 19, 1926	Matthews, Arthur N., Travelers Insurance Co., 700 Main St., Hartford, Conn.
May 19, 1915	Maycrink, Emma C., Examiner, New York Insurance Department, 165 Broadway, New York.
*Nov. 16, 1923	McClurg, D. Ralph, Secretary and Treasurer, National Equity Life Insurance Co., Little Rock, Ark.
May 23, 1919	McDougald, Alfred, Ellerslie, Beddington Gardens, Wallington Surrey, England.

FELLOWS

Date Admitted	
*Oct. 31, 1917	McManus, Robert J., Statistician, Casualty Actuarial Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.
Feb. 19, 1915	Mead, Franklin B., Vice-President, Lincoln National Life Insurance Co., Fort Wayne, Ind.
Apr. 20, 1917	Meltzer, Marcus, Statistician, National Bureau of Casualty and Surety Underwriters, 1 Park Ave., New York.
†	Michelbacher, Gustav F., Vice-President and Secretary, Great American Indemnity Co., 1 Liberty St., New York.
†	Miller, David W., Assistant Treasurer, S. W. Strauss & Co., Investment Bonds, 565 Fifth Ave., New York.
†	Milligan, Samuel, Third Vice-President, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
†	Mitchell, James F., Assistant U. S. Manager, General Accident Fire and Life Assurance Corporation, Ltd., 414 Walnut St., Philadelphia, Pa.
†	Moir, Henry, President, United States Life Insurance Co., 156 Fifth Ave., New York.
*Nov. 18, 1921	Montgomery, Victor, Secretary and General Manager, Pacific Employers Insurance Co., 621 So. Hope St., Los Angeles, Calif.
Nov. 19, 1926	Mooney, William L., Vice-President, Aetna Life Insurance Co., Hartford, Conn.
†	Moore, George D., Comptroller, Standard Surety & Casualty Company of New York, 80 John St., New York.
May 19, 1915	Morris, Edward B., Actuary, Life Department, Travelers Insurance Co., Hartford, Conn.
†	Morrison, James, Secretary-Treasurer, Independence Indemnity Co., Independence Building, Philadelphia, Pa.
†	Mowbray, Albert H., Consulting Actuary, Berkeley, Calif., Professor of Insurance, University of California, Berkeley, Calif.
May 20, 1918	Mudgett, Bruce D., Professor of Economics, University of Minnesota, Minneapolis, Minn.
*Nov. 17, 1920	Mueller, Louis H., Vice-President and Treasurer, Associated Indemnity Corporation, Associated Insurance Building, 332 Pine Street, San Francisco, Calif.
†	Mullaney, Frank R., Secretary, American Mutual Liability Insurance Co., 142 Berkeley St., Boston, Mass.
May 28, 1920	Murphy, Ray D., Second Vice-President and Associate Actuary, Equitable Life Assurance Society, 393 Seventh Ave., New York.
†	Nicholas, Lewis A., Assistant Secretary, Fidelity & Casualty Co., 92 Liberty St., New York.
†	Olifiers, Edward, Consulting Actuary, P. O. Box 1817, Rio-de-Janeiro, Brazil.
Nov. 18, 1927	O'Neill, Frank J., President, Royal Indemnity Co. and Eagle Indemnity Co., 150 William St., New York.
†	Orr, Robert K., President, Wolverine Insurance Co., Lansing, Mich.
†	Otis, Stanley L., Counsellor at Law, 110 William St., New York.
*Nov. 21, 1919	Outwater, Olive E., Benefit Association of Railway Employees, 901 Montrose Ave., Chicago, Ill.

FELLOWS

Date Admitted	
Nov. 19, 1926	Page, Bertrand A., Vice-President, The Travelers Insurance Co., 700 Main St., Hartford, Conn.
*Nov. 18, 1921	Perkins, Sanford B., Assistant Secretary, Compensation and Liability Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.
Nov. 15, 1918	Perry, W. T., Assistant Manager, Ocean Accident and Guarantee Corporation, 36 Moorgate, London, E. C. 2, England.
Nov. 19, 1926	Phillips, Jesse S., President, Great American Indemnity Co., 1 Liberty St., New York.
*Nov. 17, 1922	Pinney, Sydney D., Associate Actuary, Casualty Actuarial Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.
May 13, 1927	Reid, A. Duncan, President and General Manager, Globe Indemnity Co., Washington Park, Newark, N. J.
†	Remington, Charles H., Insurance Counselor and Advisor, Suite 1801-1805, French Building, 551 Fifth Ave., New York.
May 23, 1919	Richardson, Frederick, U. S. Manager, General Accident Fire and Life Assurance Corporation, 414 Walnut St., Philadelphia, Pa.
*Nov. 19, 1926	Richter, Otto C., American Telephone & Telegraph Co., 195 Broadway, New York.
May 24, 1921	Riegel, Robert, Professor of Insurance, University of Pennsylvania, Philadelphia, Pa.
*Nov. 16, 1923	Roeber, William F., Actuary, National Council on Compensation Insurance, 151 Fifth Ave., New York.
†	Rubinow, Isaac M., Executive Director, Zionist Organization of America, 111 Fifth Ave., New York.
†	Ryan, Harwood E., Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
†	Scheitlin, E., Assistant Treasurer, Globe Indemnity Co., Washington Park, Newark, N. J.
†	Senior, Leon S., Manager and Secretary, Compensation Inspection Rating Board, 370 Seventh Ave., New York.
Apr. 20, 1917	Smith, Charles G., Manager, State Insurance Fund, 432 Fourth Ave., New York.
Nov. 18, 1927	Stone, Edward C., U. S. Manager, Employers' Liability Assurance Corporation, Limited, and President, American Employers' Insurance Company, 110 Milk St., Boston, Massachusetts.
Feb. 25, 1916	Strong, Wendell M., Associate Actuary, Mutual Life Insurance Co., 32 Nassau St., New York.
Oct. 22, 1915	Strong, William Richard, No. 4 "Sheringham," Cotham Road, Kew, Victoria, Australia.
†	Sullivan, Robert J., Vice-President, Travelers Insurance Co. and Travelers Indemnity Co., 700 Main St., Hartford, Conn.
*Nov. 17, 1920	Tarbell, Thomas F., Actuary, Casualty Actuarial Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.
†	Thompson, John S., Vice-President and Mathematician, Mutual Benefit Life Insurance Co., 300 Broadway, Newark, N. J.

FELLOWS

Date Admitted	
Nov. 18, 1921	Toja, Guido, Professor of Financial and Actuarial Mathematics, University of Florence, Florence, Italy.
†	Train, John L., Secretary and General Manager, Utica Mutual Insurance Co., 185 Genesee St., Utica, N. Y.
Nov. 17, 1922	Traversi, Antonio T., Consulting Actuary and Accountant, Barrack House, 16 Barrack St., Sydney, Australia.
*Nov. 23, 1928	Valerius, N. M., Accident & Liability Department, Aetna Life Insurance Co., Hartford, Conn.
*Nov. 21, 1919	Van Tuyl, Hiram O., Actuary, Constitution Indemnity Company of Philadelphia, Independence Building, Independence Square, Philadelphia, Pa.
*Nov. 17, 1920	Waite, Alan W., Chief Underwriter, Accident and Liability Department, Aetna Life Insurance Co., Hartford, Conn.
*Nov. 18, 1925	Warren, Lloyd A. H., Professor of Mathematics, University of Manitoba, 64 Niagara St., Winnipeg, Manitoba, Canada.
May 23, 1919	Welch, Archibald A., President, Phoenix Mutual Life Insurance Co., Hartford, Conn.
Nov. 19, 1926	Wheeler, Roy A., Vice-President and Actuary, Liberty Mutual Insurance Co., Park Square Building, Boston, Mass.
†	Whitney, Albert W., Associate General Manager and Actuary, National Bureau of Casualty & Surety Underwriters, 1 Park Ave., New York.
†	Wolfe, Lee J., Consulting Actuary, 165 Broadway, New York.
May 24, 1921	Wood, Arthur B., Vice-President and Actuary, Sun Life Assurance Co., Montreal, Canada.
*Nov. 17, 1920	Young, Charles N., Manager, Safety Engineering Department, Constitution Indemnity Company of Philadelphia, Independence Building, Philadelphia, Pa.

ASSOCIATES

Those marked (*) have been enrolled as Associates upon examination by the Society.

Those marked (1) or (2) have passed Part I or Part II of the Fellowship Examination.

Date Enrolled	
May 23, 1924	Acker, Milton, Manager, Compensation and Liability Department, National Bureau of Casualty and Surety Underwriters, 1 Park Ave., New York.
*Nov. 15, 1918	Ackerman, Saul B., Assistant Professor of Insurance, New York University, 32 Waverly Place, New York.
*Nov. 23, 1928	Ainley, John W., Travelers Insurance Company, 700 Main Street, Hartford, Conn.
April 5, 1928	Allen, Austin F., Vice-President, Texas Employers Insurance Association and Employer's Casualty Co., Dallas, Texas.
*Nov. 15, 1918	Ankers, Robert E., Secretary and Treasurer, Continental Life Insurance Co., District National Bank Building, Washington, D. C.
(1)*Nov.16,1923	Ault, Gilbert E., Office of Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
(1)*Nov.17,1922	Barter, John L., Superintendent, Liability Department, Pacific Department, Hartford Accident & Indemnity Co., 720 California St., San Francisco, Calif.
(1)*Nov.23,1928	Bateman, Arthur E., Liberty Mutual Insurance Company, Park Square Building, Boston, Mass.
*Nov. 19, 1926	Batho, Elgin R., Bankers Life Company, Des Moines, Iowa.
*Nov. 18, 1925	Bittel, W. Harold, Peoria Life Insurance Co., 410 Main St., Peoria, Ill.
Nov. 17, 1920	Black, Nellas C., Superintendent Statistical Division, Maryland Casualty Co., Baltimore, Md.
*Nov. 23, 1928	Bower, Perry S., Great West Life Assurance Company, Winnipeg, Manitoba, Canada.
Nov. 15, 1918	Brooks, LeRoy, Statistician, U. S. Fidelity & Guaranty Co., Baltimore, Md.
Nov. 20, 1924	Broughton, Thomas W., General Superintendent, Zurich General Accident and Liability Insurance Co., Eastern Department, 80 John Street, New York.
*Nov. 15, 1918	Brunnquell, Helmuth G., Actuary, Wisconsin Insurance Department, Madison, Wis.
*Oct. 22, 1915	Buffler, Louis, District Manager, Utica Mutual Insurance Co., 225 West 34th St., New York.
*Nov. 20, 1924	Bugbee, James M., Maryland Casualty Co., Baltimore, Md.
March 31, 1920	Burt, Margaret A., Office of George B. Buck, Consulting Actuary, 25 Spruce St., New York.
*Nov. 23, 1928	Cahill, James M., Travelers Insurance Company, 700 Main St., Hartford, Conn.
Nov. 17, 1922	Cavanaugh, Leo D., Vice-President and Actuary, Federal Life Insurance Co., 166 N. Michigan Boulevard, Chicago, Ill.

ASSOCIATES

Date Enrolled	
*Nov. 18, 1927	Chen, S. T., Actuarial Department, China United Assurance Society, 34 Bubbling Road, Shanghai, China.
*Nov. 18, 1927	Conrod, Stuart F., Actuarial Department, Great-West Life Assurance Co., Winnipeg, Manitoba, Canada.
*Nov. 18, 1921	Constable, William J., Secretary, Massachusetts Automobile Rating and Accident Prevention Bureau, 80 Broad St., Boston, Mass.
(1)*Nov.19,1926	Davies, E. Alfred, Budget Supervisor, Liberty Mutual Insurance Co., Park Square Building, Boston, Mass.
*Nov. 18, 1925	Davis, Malvin E., Metropolitan Life Insurance Co., 1 Madison Ave., New York.
May 25, 1923	Economidy, Harilaus E., Treasurer, American Indemnity Co., Texas Indemnity Insurance Co., American Fire & Marine Insurance Co., Galveston, Texas.
June 5, 1925	Eger, Frank A., Comptroller, Insurance Company of North America and Affiliated Companies, 1600 Arch St., Philadelphia, Pa.
Nov. 15, 1918	Egli, W. H., Assistant Manager, Zurich General Accident & Liability Insurance Co., 431 Insurance Exchange, Chicago, Ill.
*Nov. 23, 1928	Faith, E. L., Missouri State Life Insurance Co., St. Louis, Mo.
*Nov. 16, 1923	Fitz, L. Leroy, Assistant Actuary, Acacia Mutual Life Association, 101 Indiana Ave., N. W., Washington, D. C.
(1)*Nov.18,1927	Fitzgerald, A. H., Assistant Actuary, The Prudential Insurance Company of America, Newark, N. J.
*Nov. 16, 1923	Fleming, Frank A., Actuary, American Mutual Alliance, 730 5th Ave., New York.
May 23, 1919	Fletcher, Nicholas, Assistant to Commissioner and Secretary, Workmen's Compensation Board, Winnipeg, Manitoba, Canada.
Nov. 20, 1924	Froberg, John, Superintendent, California Inspection Rating Bureau, San Francisco, Calif.
(1)*Nov.19,1926	Fuller, Gardner V., Assistant Secretary, National Council on Compensation Insurance, 151 Fifth Ave., New York.
*Nov. 17, 1922	Gibson, Joseph P., Jr., Assistant General Manager, Builders and Manufacturers Mutual Casualty Co., State Bank Building, Chicago, Ill.
*Nov. 16, 1923	Gildea, James F., Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 23, 1928	Glenn, J. Bryan, Travelers Insurance Company, 700 Main St., Hartford, Conn.
*Nov. 18, 1927	Green, Walter C., Office of Coates and Herfurth, Consulting Actuaries, 354 Pine St., San Francisco, Calif.
*Nov. 18, 1921	Haggard, Robert E., Superintendent, Permanent Disability Rating Department Industrial Accident Commission, State Building, Civic Center, San Francisco, Calif.
*Nov. 17, 1922	Hall, Hartwell L., Assistant Actuary, Connecticut Insurance Department, Hartford, Conn.
Nov. 20, 1924	Hall, Leslie L., Secretary-Treasurer, National Bureau of Casualty & Surety Underwriters, 1 Park Ave., New York.
(2)*Nov.18,1925	Hall, William D., Motor City Agency, Penobscot Building, Detroit, Michigan.

ASSOCIATES

Date Enrolled	
(1)*Mar.25,1924	Hart, Ward Van Buren, Assistant Actuary, Connecticut General Life Insurance Co., Hartford, Conn.
Nov. 21, 1919	Haydon, George F., General Manager, Wisconsin Compensation Rating & Inspection Bureau, 110 East Wisconsin Ave., Milwaukee, Wis.
Nov. 17, 1927	Hipp, Grady H., Actuary, New York Insurance Department, Albany, N. Y.
Nov. 18, 1921	Hull, Robert S., Comptroller, Standard Accident Insurance Co., 640 Temple Ave., Detroit, Mich.
*Oct. 31, 1917	Jackson, Edward T., Statistician, General Accident Fire & Life Assurance Corporation, 421 Walnut St., Philadelphia, Pa.
(1)*Nov.19,1926	Jackson, Henry H., Associate Actuary, National Life Insurance Co., Montpelier, Vt.
(1)*Nov.18,1927	Jamison, Dorothy M., Assistant Actuary, George Washington Life Insurance Co., 1014 Kanawha St., Charleston, W. Va.
(2)*Nov.18,1921	Jensen, Edward S., Actuary, Great Republic Life Insurance Co., Los Angeles, Calif.
*Nov. 21, 1919	Jones, Loring D., Assistant Manager, State Insurance Fund, 432 Fourth Ave., New York.
*Nov. 17, 1922	Kirk, Carl L., Actuary, Zurich General Accident & Liability Insurance Co., 431 Insurance Exchange, Chicago, Ill.
*Nov. 19, 1926	Kormes, Mark, National Bureau of Casualty and Surety Underwriters, 1 Park Ave., New York.
*Nov. 23, 1928	Lipkind, S. S., Reliance Life Insurance Company, Pittsburgh, Pa.
*Nov. 18, 1925	Malmuth, Jacob, Examiner, New York Insurance Department, 165 Broadway, New York.
Mar. 24, 1927	Marsh, Charles V. R., Comptroller and Assistant Treasurer, Fidelity & Deposit Co. and American Bonding Co., Baltimore, Md.
(1)*Oct,27, 1916	McClure, Laurence H., Assistant Sales Manager, Electrical Division, Colt's Patent Fire Arms Manufacturing Co., Hartford, Conn.
*Nov. 17, 1922	McIver, Rosswell A., Actuary, Washington Fidelity National Insurance Co., 1607 Howard St., Chicago, Ill.
*Nov. 19, 1926	Merkle, Grace G., Illinois Bell Telephone Co., 212 West Washington St., Chicago, Ill.
(1)*Nov.17,1922	Michener, Samuel M., Assistant Actuary, Columbus Mutual Life Insurance Co., 580 East Broad St., Columbus, Ohio.
*Nov. 19, 1926	Milne, John L., Actuary, Presbyterian Ministers' Fund for Life Insurance, 1805-7 Walnut St., Philadelphia, Pa.
Nov. 17, 1922	Montgomery, John C., Assistant Secretary and Assistant Treasurer, Bankers Indemnity Insurance Co., 31 Clinton St., Newark, N. J.
May 25, 1923	Moore, Joseph P., President, North American Accident Insurance Co., 455 Craig St., W., Montreal, Canada.
(2)*Nov.21,1919	Mothersill, Roland V., Secretary Anchor Casualty Co., 360 Robert St., St. Paul, Minn.
(1)*Oct.27, 1916	Newell, William, Assistant Secretary, Sun Indemnity Co., 55 Fifth Ave., New York.

ASSOCIATES

Date Enrolled	
*Nov. 23, 1928	Newhall, Karl, Travelers Insurance Company, 700 Main St., Hartford, Conn.
*Nov. 18, 1925	Nicholson, Earl H., Assistant to Executive Vice-President, Inter-Southern Life Insurance Co., Louisville, Ky.
May 23, 1919	Otto, Walter E., Secretary and Treasurer, Michigan Mutual Liability Co., 1209 Washington Blvd., Detroit, Mich.
*Nov. 19, 1926	Overholser, Donald M., Clokey & Miller, Brokers, 52 Broadway, New York.
Nov. 20, 1924	Pennock, Richard M., Actuary, Pennsylvania Manufacturers Association Casualty Insurance Co., Finance Building, Philadelphia, Pa.
Nov. 22, 1928	Perryman, F. S., Actuary and Assistant Secretary, Royal Indemnity Co., 150 William St., New York.
*Nov. 17, 1920	Pike, Morris, Actuary, Judea Life Insurance Co., 44 East 23rd St., New York.
Mar. 24, 1927	Piper, John W., Superintendent of Statistical Department, Hartford Accident & Indemnity Co., 690 Asylum Ave., Hartford, Conn.
(1)*Nov.23,1928	Piper, Kenneth B., Office of Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton Street, New York.
*Nov. 18, 1927	Poissant, William A., Travelers Insurance Co., 700 Main St., Hartford, Conn.
(1)*Nov.17,1922	Poorman, William F., Actuary, Central Life Assurance Society, Fifth and Grand Aves., Des Moines, Iowa.
(1) Nov.17,1922	Powell, John M., Actuary, Columbian National Life Insurance Co., 77 Franklin St., Boston, Mass.
*Nov. 18, 1925	Prenner, Myron R., Actuary, Department of Insurance, Bismarck, N. D.
*Nov. 23, 1928	Pruitt, D. M., Pennsylvania Indemnity Corporation, Atlantic Building, Philadelphia, Pa.
*Nov. 15, 1918	Raywid, Joseph, Manager, Statistical Service Department, Library Bureau Division, Remington Rand Business Service, Inc., 81 Fulton St., New York.
*Nov. 21, 1919	Robbins, Rainard B., Vice-President-Actuary, Union Labor Life Insurance Co., 1701 Connecticut Ave., N. W., Washington, D. C.
*Nov. 18, 1927	Sarason, Harry M., Missouri State Life Insurance Co., St. Louis, Mo.
Nov. 16, 1923	Sawyer, Arthur, Globe Indemnity Co., Washington Park, Newark, N. J.
(1)*Nov.20,1924	Sheppard, Norris E., University of Toronto, Toronto, Canada.
Nov.. 15, 1918	Sibley, John L., Statistician, United States Casualty Co., 80 Maiden Lane, New York.
(1)*Nov.18,1925	Skelding, Albert Z., Assistant Actuary, National Council on Compensation Insurance, 151 Fifth Ave., New York.
*Nov. 19, 1926	Skillings, Edward S., Hartford Accident & Indemnity Co., Hartford, Conn.
*Nov. 18, 1921	Smith, Arthur G., Treasurer & Actuary, Compensation Inspection Rating Board, 370 Seventh Ave., New York.
(1)*Nov.19,1926	Somerville, William F., Actuary and Underwriter, Anchor Casualty Co., 360 Robert St., St. Paul, Minn.

ASSOCIATES

Date Enrolled	
*Nov. 18, 1925	Sommer, Armand, Production Manager, Commercial Accident and Health Department, General Accident, Fire & Life Assurance Corp., Ltd., Fourth & Walnut Sts., Philadelphia, Pa.
*Nov. 18, 1927	Speers, Alexander A., Actuary, Toledo Travelers Life Insurance Co., Toledo, Ohio.
*Nov. 15, 1918	Spencer, Harold S., Aetna Life Insurance Co., Hartford, Conn.
Nov. 20, 1924	Stellwagen, Herbert P., Assistant Vice President, Indemnity Insurance Company of North America, 1600 Arch Street, Philadelphia, Pa.
*Nov. 16, 1923	Stoke, Kendrick, Michigan Mutual Liability Ins. Co., 1209 Washington Blvd., Detroit, Michigan.
Mar. 23, 1921	Thompson, Arthur E., Chief Statistician, Globe Indemnity Co., Washington Park, Newark, N. J.
(1)*Nov.21,1919	Trench, Frederick H., Manager, Underwriting Department Utica Mutual Insurance Co., 239 Genesee St., Utica, N. Y.
*Nov. 20, 1924	Uhl, M. Elizabeth, National Bureau of Casualty & Surety Underwriters, 1 Park Ave., New York.
*Nov. 21, 1919	Voogt, Walter G., Actuary, State Insurance Fund, 432 Fourth Ave., New York.
(1)*Oct.27, 1916	Waite, Harry V., Statistician, Travelers Fire Insurance Co., 700 Main St., Hartford, Conn.
May 23, 1919	Warren, Charles S., Comptroller, Lloyds Casualty Co., 75 Maiden Lane, New York.
Nov. 18, 1925	Washburn, James H., 420 Lexington Ave., New York.
(1)*Nov.18,1921	Waters, Leland L., Secretary-Treasurer, National Accident Insurance Co., Lincoln, Neb.
Nov. 17, 1920	Watson, J. J., Vice-President and General Manager, Traders and General Insurance Co., Republic National Bank Building, Dallas, Texas.
*Nov. 18, 1921	Welch, Eugene R., Associated Indemnity Corporation, Associated Insurance Building, 332 Pine St., San Francisco, Calif.
*Nov. 19, 1926	Welch, George P., Gilbert Eliott & Company, Brokers, 26 Exchange Place, New York.
*Nov. 18, 1925	Wellman, Alexander C., Actuary, Protective Life Insurance Co., Birmingham, Ala.
*Nov. 16, 1923	Wetherald, Dorothy, 4631 Sansom St., Philadelphia, Pa.
*Nov. 18, 1927	Whitbread, Frank G., Great West Life Assurance Co., Winnipeg, Manitoba, Canada.
Nov. 15, 1918	Wilkinson, A. Edward, Actuary, Standard Accident Insurance Co., 640 Temple Ave., Detroit, Mich.
Sept. 17, 1919	Williams, John F., Vice-President, Illinois Life Insurance Co., 1212 Lake Shore Drive, Chicago, Ill.
*Oct. 22, 1915	Williamson, William R., Assistant Actuary, Life Department, Travelers Insurance Co., 700 Main St., Hartford, Conn.
*Oct. 22, 1915	Wood, Donald M., Childs & Wood, General Agents, Independence Indemnity Co., 175 W. Jackson Blvd., Chicago, Ill.
*Nov. 18, 1927	Wood, Milton J., Travelers Insurance Co., 700 Main St., Hartford, Conn.

ASSOCIATES

*Oct. 22, 1915	Woodman, Charles E., Comptroller, Ocean Accident & Guarantee Corporation, 1 Park Ave., New York.
*Nov. 18, 1925	Woolery, James M., Assistant Actuary, Inter-Southern Life Insurance Co., Louisville, Ky.
*Nov. 17, 1922	Young, Floyd E., Assistant Secretary and Actuary, National Fidelity Life Insurance Co., National Fidelity Life Building, Kansas City, Mo.

SCHEDULE OF MEMBERSHIP, NOVEMBER 23, 1928

	Fellows	Associates	Total
Membership, November 18, 1927	169	110	279
Deductions:			
By resignation	—	1	1
By withdrawal	2	—	2
By death	4	—	4
	163	109	272
Additions:			
By election, May 25, 1928	—	1	1
By election, November 23, 1928	3	1	4
By 1928 examinations	4	10	14
	170	121	291
Transfers from Associate to Fellow	—	4	4
Membership, November 23, 1928	170	117	287

EX-PRESIDENTS AND EX-VICE-PRESIDENTS

EX-PRESIDENTS

	Term
I. M. Rubinow	1914-1916
James D. Craig	1916-1918
*Joseph H. Woodward	1918-1919
Benedict D. Flynn	1919-1920
Albert H. Mowbray	1920-1922
Harwood E. Ryan	1922-1923
William Leslie	1923-1924
G. F. Michelbacher	1924-1926
Sanford B. Perkins	1926-1928

EX-VICE-PRESIDENTS

	Term
Leon S. Senior	1920-1922
Edmund E. Cammack	1922-1924
Ralph H. Blanchard	1924-1926
Thomas F. Tarbell	1926-1928

*Deceased

DECEASED MEMBERS

All of the following were Fellows with the exception of those marked * who were Associates.

Date of Death	
Feb. 10, 1920	*Baxter, Don. A., Deputy Insurance Commissioner, Michigan Insurance Department, Lansing, Mich.
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.
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.
July 9, 1922	Downey, Ezekiel Hinton, Compensation Actuary, Pennsylvania Insurance Department, Harrisburg, Pa.
Oct. 30, 1924	Fackler, David Parks, Consulting Actuary, New York.
Aug. 22, 1925	Gaty, Theodore E., Vice-President and Secretary, Fidelity & Casualty Co., New York.
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, Travelers Insurance Co., Hartford, Conn.
Dec. 9, 1927	Landis, Abb, Consulting Actuary, Nashville, Tenn.
Dec. 20, 1920	*Lubin, Harry, Assistant Actuary, State Industrial Commission, New York.
Aug. 20, 1915	Montgomery, William J., State Actuary, Boston, Mass.
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.
Feb. 26, 1921	Saxton, Arthur F., Chief Examiner of Casualty Companies, New York Insurance Department, New York.
May 9, 1920	Stone, John T., President, Maryland Casualty Co., Baltimore, Md.
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.

STUDENTS

The following candidates for the grade of Associate have passed one of the two parts of the examination, during the last three years:

Part I only

BURHANS, C. H., Standard Accident Insurance Co., 640 Temple Ave., Detroit, Mich.

SHAPIRO, ISRAEL, c/o Woodward, Fondiller & Ryan, 75 Fulton St., New York.

Part II only

HUNTON, T. F., Assistant Actuary, Canadian Automobile and Casualty Underwriters Associations, 330 Bay St., Toronto, Canada.

MESSINGER, L. W., Missouri State Life Insurance Co., St. Louis, Mo.

CONSTITUTION

(As Amended November 23, 1928)

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 members and those who may be duly admitted to Fellowship as hereinafter provided. Any Associate of the Society may apply to the Council for admission to Fellowship. If the application shall be approved by the Council with not more than three negative votes the Associate shall 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.

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.

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 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 MAY 21, 1926)

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.

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.

SYLLABUS OF EXAMINATIONS

SUBJECTS

ASSOCIATESHIP: (*Part I: Sections 1 to 4; Part II: Sections 5 to 8*)

Section 1. Advanced algebra
Section 2. Compound interest and annuities certain
Section 3. Descriptive and analytical statistics
Section 4. Elements of accounting, including double-entry bookkeeping
Section 5. Finite differences
Section 6. Differential and integral calculus
Section 7. Probabilities
Section 8. Elements of the theory of life contingencies; life annuities; life assurances

FELLOWSHIP: (*Part I: Sections 9 to 12; Part II: Sections 13 to 16*)

Section 9. Policy forms and underwriting practice in casualty insurance
Section 10. Investments of insurance companies
Section 11. Insurance law and legislation
Section 12. Economics of insurance
Section 13. Calculation of premiums and reserves for casualty (including social) insurance
Section 14. Advanced practical problems in casualty (including social) insurance statistics
Section 15. Advanced problems and practical methods of casualty insurance accounting
Section 16. Advanced problems in underwriting, administrative and service elements of casualty (including social) insurance

RULES REGARDING EXAMINATIONS FOR ADMISSION TO THE SOCIETY

(As Amended May 25, 1928)

The Council adopted the following rules providing for the examination system of the Society:

1. Examinations will be held on the first Wednesday and Thursday during the month of May in each year in such cities as will be convenient for three or more candidates.

2. 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 February preceding the dates of examination.

3. A fee of $5.00 will be charged for admission to examination. This fee is the same whether the candidate sits for one or two parts and is payable for each year in which the candidate presents himself. Examination fees are payable to the Secretary-Treasurer and must be in his hands before the fifteenth day of February preceding the dates of examination.

4. The examination for Associateship consists of two parts. No candidate will be permitted to present himself for Part II unless he has previously passed in Part I or takes Parts I and II in the same year. If a candidate takes both parts in the same year and passes in one and fails in the other, he will be given credit for the part passed. Upon the candidate having passed both Parts I and II he will be enrolled as an Associate, provided he presents evidence of at least one year experience in actuarial, accounting or statistical work in casualty insurance offices or in the teaching of casualty insurance science at a recognized college or university, or other evidence of his knowledge of actuarial, accounting or statistical work as is satisfactory to the Council.

5. In the case of applicants in the following classes, the Council may, upon receipt of satisfactory evidence that applicants are within the terms of this rule, waive the passing of both Parts I and II of the Associateship Examination. Such applicants may become Associates upon passing Part I of the

Fellowship Examination, and may be admitted as Fellows by examination, provided they subsequently pass Part II of the Fellowship Examination.

(a) Casualty insurance men not less than thirty years of age who have been in the business a number of years and who have attained responsible actuarial, statistical, accounting or semi-executive positions.*

(b) Fellows and Associates by examination of the Actuarial Society of America or of the American Institute of Actuaries.

6. The examination for Fellowship is divided into two parts. No candidate will be permitted to present himself for Part II unless he has previously passed in Part I or takes Parts I and II in the same year. If a candidate takes both parts in the same year and passes in one and fails in the other, he will be given credit for the part passed.

7. As an alternative to the passing of Part II of the Fellowship examination, a candidate may elect to present an original thesis on an approved subject relating to casualty or social insurance. Candidates electing this alternative should communicate with the Secretary-Treasurer as to the approval of the subject chosen. All theses must be in the hands of the Secretary-Treasurer before the first Thursday in May 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*.

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*In support of the candidate's claim that he is within the terms of this rule, he should attach to his application a letter from each of the nominators signing his application. These letters should state the facts of the candidate's experience which appear to entitle the candidate to the benefit of this rule.

1928 EXAMINATIONS OF THE SOCIETY

EXAMINATION COMMITTEE

SYDNEY D. PINNEY - - CHAIRMAN

IN CHARGE OF ASSOCIATESHIP EXAMINATIONS

HAROLD J. GINSBURGH, CHAIRMAN
HOWARD G. CRANE
NORTON E. MASTERSON

IN CHARGE OF FELLOWSHIP EXAMINATIONS

JOSEPH LINDER, CHAIRMAN
HARMON T. BARBER
CHARLES J. HAUGH

EXAMINATION FOR ADMISSION AS ASSOCIATE

PART I.

1. (a) Find the coefficient of x^{12} in $(x^2 + 2x)^{10}$

   (b) A man has 7 friends; in how many ways may he invite one or more of them to dinner?

2. (a) The sum of three numbers in geometrical progression is 38, and their product is 1728; find them.

   (b) From 3 capitals, 5 consonants, and 4 vowels, how many words can be made, each containing 3 consonants and 2 vowels, and beginning with a capital?

3. (a) Solve:
$$\begin{aligned} x + y + z &= 11 \\ x^2 + y^2 + z^2 &= 45 \\ y\,z &= 20 \end{aligned}$$

   (b) Solve:
$$\begin{aligned} a^{2x}\,b^{3y} &= m^5 \\ a^{3x}\,b^{2y} &= m^{10} \end{aligned}$$

4. A train A starts to go from P to Q, two stations 240 miles apart, and travels uniformly. An hour later another train B starts from P, and after traveling for 2 hours, comes to a point that A had passed 45 minutes previously. The pace of B is now increased by 5 miles an hour, and it overtakes A just on entering Q. Find the rates at which they started.

5. (a) A $10,000 five percent semi-annual coupon bond is bought on a 4% basis due 1½ years hence. What did it cost?

   (b) In how many years will $63 amount to $336 at $4^1/_6$% compound interest?

   Given: $\log 2 = .30103$
   $\log 3 = .47712$

6. A owns an annuity of \$50 per annum, the first payment on which falls due a year hence, and which continues for a period of twenty years certain. Find:

   (a) The present value of the benefit.

   (b) The amount which A will have accumulated at the end of the period if he invests each rent as it becomes due.

   Given: $(1.04)^{20} = 2.19112$

7. How much must be paid for a bond of \$100 with interest rate at 5% nominal, payable January 1st and July 1st and redeemable at par in 20 years, to yield 6% nominal, convertible semi-annually?

   Given $(1.03)^{-40} = 0.30656$

8. A car costs \$4000 new, and \$500 per year to run. If it is turned in every three years for \$1000 and a new car costing the same amount is bought, what sum invested at 4% would enable a man to buy and run such a car for 45 years?

   Given $a_{\overline{45|}} = 20.720$
   $a_{\overline{44|}} = 20.549$
   $a_{\overline{3|}} = 2.775$

9. (a) Define Dispersion. Describe two measures of dispersion.

   (b) Define Correlation, Coefficient of Correlation, Skewness, and Probable Error.

10. (a) Name and describe briefly the principal types of index numbers.

    (b) Using the principle of index numbers discuss a method of comparing compensation insurance benefits to show the following:

    1. Comparison of state laws
    2. Comparison of law trends within each state
    3. Comparison of benefit trends between states and between laws.

11. Calculate for the following table the equation of the line of least squares. Draw a rough graph indicating the secular trend of the data.

Year	Tons (in millions)
1905	2
1906	4
1907	3
1908	3
1909	6
1910	8
1911	9

12. Compute for the following series the Pearsonian coefficient of correlation. What significance has the result?

Field	Fertilizer Applied (lbs. per acre)	Yield (000's of lbs. per acre)
A	60	9
B	100	13
C	150	11
D	220	16
E	240	19
F	310	17
G	355	20

13. (a) Discuss the uses and advantages of graphic representation.

(b) What is a logarithmic chart? What are the advantages of plotting a curve on logarithmic paper as compared with ordinary coordinate paper?

14. (a) Formulate and explain a rule for determining whether an account should be debited or credited in any given transaction.

(b) Describe an approved system of recording and vouching petty cash transactions.

15. An Insurance Company desires to record on its books at the end of each month the amount of interest accrued on bonds during the month. What journal entry is necessary to do this? The company buys \$100,000 of bonds at 101½ plus accrued interest of \$1,000. What entry is made? On the first day of the month interest coupons are credited to its bank account. What entry is made?

16. Smith & Co. began business on January 1, 1927 with capital stock of $100,000 fully paid in cash. On January 2, 1927 purchases of merchandise totalling $25,000 were made on account. On the same day $1000 in cash was paid for furniture and fixtures. On January 5, 1927 a bill of $75 was received for taxes. On January 8, 1927 a bill of $45 was received for fire insurance. Fifteen dollars was paid for interest on January 15, 1927.

During January, sales amounted to $6000 for which $5000 was received in cash. On January 31, 1927 there was an inventory of merchandise of $22,000. The insurance prepaid on that day amounted to $15. The interest accrued amounted to $10. There was a $20 depreciation on furniture and fixtures for the month.

Draw up the journal entries, post to the ledger, and prepare a trial balance reflecting the above transactions.

PART II

1. State and prove the theorem for the differentiation of a logarithm.

2. (a) Find $\int \sqrt{a + bx}\, dx$

   (b) Find $\int \frac{(x - 1)\, dx}{(x^2 + 6x + 8)}$

3. (a) Find $\frac{dy}{dx}$ when $y = (x^{\frac{1}{n}} - a^{\frac{1}{n}})^n$

   (b) Differentiate $x^2 y^2 + 4xy + b = 0$

4. Is the following argument correct? If so, prove the statement. If not, show the fallacy and give the correct result: "Three persons A, B, and C, blindfolded, place themselves at random in a straight line; required the chance that both B and C will place themselves to the right of A. The chance that B is to the right of A is ½; the chance that C is to the right of A is also ½; therefore the chance that both are to the right of A equals ¼."

5. A and B throw with a die for a stake of \$99 which is to be won by the man who first throws an ace. What are their respective expectations if they alternate in throwing, A having first chance. What is the chance that B will not get the opportunity to throw at all? Just once?

6. (a) A ball 2 inches in diameter, is thrown against a wire netting, the apertures of which are squares of 3 inches a side. Find the chance that it goes through without hitting a wire. (The thickness of the wire may be neglected.)

   (b) A has 3 shares in a lottery containing 3 prizes and 9 blanks; B has 2 shares in a lottery containing 2 prizes and 6 blanks; compare their chances of success.

7. One box contains 5 nickels and 1 quarter, a second box contains 6 nickels. Two coins are taken from the first and placed in the second; then two are taken from the second and placed in the first. Find the probable value of the contents of each box.

8. In five throws with a single die what is the chance of throwing (1) three aces exactly? (2) three aces at least?

9. Given the following $\mathring{e}_x$ from the American Experience Table of Mortality approximate the value of $\mathring{e}_{40}$ by a method of Finite Differences:

Age	$\mathring{e}_x$
10	48.72
20	42.20
30	35.33
50	20.91
60	14.10
70	8.48

10. (a) What is the formula for determining the first term of any order of differences? Find the first term of the third order of differences of $1^2, 2^2, 3^2, 4^2, \ldots\ldots$

    (b) Find by finite differences the first 10 terms of the series 1, 3, 5, 13, 33, etc.

11. Find the sum of n terms of the series whose nth term is

$$(3n - 1)(n + 2)$$

12. (a) Give the meaning of the following—

(1) ${}_{n}p_x - {}_{n}p_{xy}$

(2) ${}_{n}p_x - {}_{n+r}p_x$

(b) Write formulae for the following probabilities, using symbols relating to the *individual* life.

(1) x will die in the nth year hence

(2) Both x and y will survive n years

(3) Either x or y, but not both, will die within n years.

13. Given ${}_{25}p_{25} = .8$

${}_{25}p_{50} = .3$

${}_{15}p_{25} = .9$

Obtain a value for ${}_{35}p_{40}$

14. Find the rate of interest, given

(a) $a_x = 13.257$ and $A_x = .19304$

(b) $a_x = 13.164$ and $P_x = .04147$

(c) $A_x = .19414$ and $P_x = .00927$

15. Given $D_{25} = 50{,}000$ $\quad N_{35} = 700{,}000$

$D_{35} = 35{,}000$ $\quad N_{60} = 150{,}000$

$D_{65} = 10{,}000$

(a) Find the present value of an annuity on a life aged 25, annual payments of \$1000 starting 10 years hence and continuing until age 60, and annual payments of \$2000, thereafter.

(b) What is the present value of \$5000 to be paid in 10 years to an individual, now 25, and a further payment of \$5000 if he is alive 40 years from now?

16. Under a certain compensation act, death benefits are

(a) To the widow, 35% of wages of the deceased for her lifetime.

(b) To each child, 10% as long as the widow lives; 15% after her death, child's benefit to cease at age of 18.

Find the present value of the death benefit where

Deceased's wages were \$2000 per annum and dependents are a widow aged 35, and one child aged 10.

Given $\bar{a}_{35} = 19.25$ $\quad {}_{8|}\bar{a}_{10} = 18.31$

$\bar{a}_{10} = 25.15$ $\quad \bar{a}_{35:10:\overline{8|}} = 6.50$

EXAMINATION FOR ADMISSION AS FELLOW

PART I

1. Outline briefly the coverage and basis of premium for:
   (a) Product Public Liability Insurance
   (b) Owners' or Contractors' Protective Public Liability Insurance
   (c) Elevator Collision Insurance
   (d) Manufacturers' and Contractors' Property Damage Liability Insurance.

2. (a) A merchant carries a stock of silk valued at \$75,000 which he insures for \$25,000 under a mercantile open stock policy. The policy provides for a coinsurance limit of \$30,000 and a coinsurance percentage of 60%. A loss of \$10,000 is incurred. What is the liability of the carrier?
   (b) Under what conditions, if any, does excess Bank Burglary and Robbery insurance become primary insurance?

3. (a) Describe corporate suretyship and distinguish between it and insurance.
   (b) Name and briefly describe five types of bonds usually written by surety companies.

4. Explain
   (a) Omnibus clause (automobile public liability insurance)
   (b) Automatic coverage (automobile public liability insurance)
   (c) Subrogation
   (d) Concurrent Insurance
   (e) Short rate

5. (a) The three-year premium for a boiler policy covering continuous operations is \$400 when payable on delivery of the policy. Determine what the three-year premium should be when it is to be paid in equal annual instalments on a part time policy on the same risk for which the reduction for part time operations is \$50.
   (b) What four methods may be used in insuring risks involving five or more automobiles?

6. (a) With reference to compensation insurance, define minimum premium and outline the basis of determination:
   (1) In the event of more than one classification appearing on the policy.
   (2) In the event of cancellation.
   (b) What is the distinction between a compensation policy providing "ex-medical" coverage and one including a "medical contract"?

7. Name five methods of dealing with risk and give brief illustrations of each.

8. (a) From the point of view of an individual investor compare the merits of capital stock of an established insurance company with investment trust certificates of a first class character with reference to safety of principal, yield and appreciation.
   (b) To what do you attribute the general advance in the market value of insurance securities during the last six months? Do you consider the current high prices permanent?

9. (a) Does insurance reduce risks or does it transfer risks from the individual to society?
   (b) Should a state carry insurance on its buildings?

10. What do you consider to be a good average distribution in per cent of the admitted assets among the following items of an insurance company engaged in (a) fire insurance, (b) life insurance, and (c) casualty insurance

    Real Estate
    Mortgage Loans
    Collateral Loans
    Loans on Policies
    Premium Notes
    Bonds
    Stocks
    Cash in Offices and Banks
    Unpaid Premiums
    All Other Assets.

    Give reasons for your answer.

11. Criticize the practice of a parent insurance company and a subsidiary insurance company each holding large blocks of the other's capital stock. Are there any legal restrictions on this practice?

12. Discuss the advantages and disadvantages of including securities in the annual statement at their market values. What would you suggest as a means of offsetting the disadvantages?

13. (a) Define insurance contract. Discuss the statement that an insurance contract is not a wagering contract.
    (b) It has been ruled recently that an automobile service contract issued for a consideration and which provides for repairs to the body and all metal work of an automobile, exclusive of the power plant, made necessary by a collision or other similar accidental external violence is not an insurance contract. Distinguish between such a contract and an insurance contract such as a plate glass policy which provides that broken glass may be replaced in lieu of indemnity.

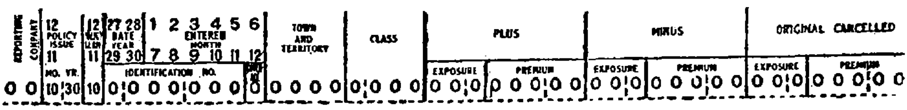
14. Interpret the phrase "external, violent and accidental means" which appears in the insuring clause of an accident policy. Which of the following causes of death are construed to be "external, violent and accidental"?
    (a) The bite of a poisonous insect.
    (b) Choking by food lodging in the wind-pipe.
    (c) Drowning.
    (d) Death caused by fright.
    (e) Death from an inadvertent overdose of a deadly drug.

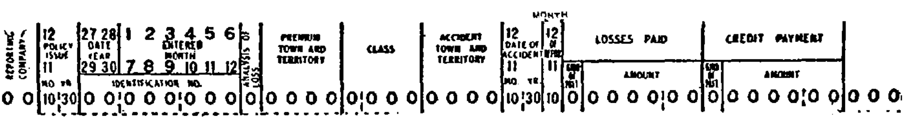
15. Discuss the statement that "experience rating as applied to workmen's compensation insurance in New York constitutes a violation of the anti-discrimination law of the state".

16. A carries the usual form of automobile (non-compulsory) liability insurance policy. B, who is a licensed driver carrying no insurance and driving A's car (with A's permission) accidentally runs down A and injures him. A starts suit and receives a verdict.
    (a) Does A recover under his own policy; *i. e.*, is the carrier liable? Give reasons.
    (b) Supposing B is driving without A's permission.
    (c) Supposing B is the wife of A.

PART II

1. Under the Massachusetts compulsory automobile law all policies expire on December 31. It is contended that due to seasonal variation in loss cost there is inequitable rating as between policies effective in the first half of the year and policies effective in the second half of the year. Assuming complete reporting of premiums and losses on the following punch cards for one policy year, state what investigation you would conduct to measure such possible variation.





2. It is decided to introduce a factor to take account of the trend in loss cost in developing rates for Manufacturers and Contractors public liability insurance. In discussing methods to be used in developing such a factor the following suggestions are made:

   (a) To arrive at such a factor by comparing the average pure premium of the most recent policy year which enters into the experience upon which the revised rates are predicated with the average pure premium for all policy years which enter into such experience.

   (b) To arrive at such a factor by comparing the actual loss ratio of the most recent policy year with the actual average loss ratio for all policy years which enter into the experience.

   What are the objections to these suggestions and what other method would you suggest as being superior to either of them?

3. Discuss the present method of computing compensation and liability loss reserves in the annual statement on the Schedule P basis from the standpoint of

   (a) Insurance companies
      (i) in business less than three years,
      (ii) in business more than three years.

   (b) Insurance departments who rely on these statements for the purpose of determining the financial condition of companies
      (i) in business less than three years,
      (ii) in business more than three years.

4. (a) In the development of compensation manual rates recognition is often given to law amendments which have a minor influence on loss cost, yet changes in wage scales which may have a pronounced influence on premium income are not specifically taken into consideration. How do you explain this apparent inconsistency?

   (b) Outline the so-called "formula" method of selecting compensation pure premiums for rate making purposes.

5. (a) Interpret the following formula which is used in valuing the compensation claim reserve per $100 annual wages for a dependent child age y in a New York fatal compensation case where there is a widow age x and not more than two other children under age 18:

$$15\bar{a}_{y:\overline{18-y}|} - 5\bar{a}_{x:y:\overline{18-y}|}$$

   (b) State briefly your views and reasons therefor with respect to a proposal to take investment income into account in determining rates for workmen's compensation insurance. To what extent, if any, is investment income taken into consideration today in arriving at workmen's compensation rates.

6. Outline the principal features of a statistical plan for compiling Elevator Public Liability experience, showing items on the punch card to be used with the plan and indicating roughly a form of a schedule for reporting statistical data for rate making.

7. Describe the manner in which you would calculate the expense loading for each of the following lines of insurance, including in your description a statement of the information you would require and the sources from which you would obtain it:

   (a) Automobile public liability insurance
   (b) Plate glass insurance

8. Discuss the advantages and disadvantages of the proposal to give increased weight to the experience of the more recent policy years and less weight to the earlier experience in the experience rating procedure as applied to compensation risks.

9. The annual statement of a casualty company as of December 31, 1925, having a capital stock of $750,000, showed ledger assets of $4,350,000 made up as follows:

Book value of real estate...........	$ 150,000
Book value of bonds................	2,750,000
Mortgage loans on real estate.......	300,000
Cash in banks and office............	550,000
Premiums in course of collection.....	600,000

During 1926 the following transactions took place:

Gross premiums written $4,850,000; reinsurance premiums $280,000; premiums on policies not taken $670,000; interest received $130,000; gross losses paid amounted to $1,600,000 which were reduced by reinsurance received of $50,000 and salvage of $100,000. Payments for loss expenses, commissions, salaries, taxes and other expense items amounted to $1,300,000; a dividend of 12% was declared and paid, and $5,000 premiums were charged off as uncollectible; $30,000 was loaned on mortgages; bonds with a par value of $26,250 and a book value of $25,000 matured during the year. Net premiums collected during the year amounted to $3,993,750.

Make up a statement of Income, Disbursements, and Ledger Assets as of December 31, 1926 following in general the form prescribed by the National Convention of Insurance Commissioners.

10. (a) Name five disbursement accounts which will generally be involved in allocating the expenses by line of insurance of a branch office of a multiple-line casualty company and indicate briefly the basis of allocation which you would follow.

(b) Why is it impractical to pro-rate general administration expense by paid premiums in the allocation of expenses of a multiple-line organization writing boiler, burglary, miscellaneous property damage and other indemnity lines?

11. What is the purpose of and what information is called for in Schedules J, K, and O of the Convention Annual Statement form.

12. The calendar year figures for general public liability insurance of a company show the following results:

	Written Premiums	Paid Losses	Loss Ratio
1923	2,000,000	1,000,000	.50
1924	1,750,000	890,000	.51
1925	1,500,000	780,000	.52
1926	1,250,000	660,000	.53
1927	1,000,000	540,000	.54

Assume an even trend of business written throughout the period and that paid losses approximate incurred losses. State what your recommendation would be as to the future policy of the company in soliciting this line, taking into consideration that the expected loss ratio underlying manual rates is 51%.

13. To construct an automobile liability excess limits table
(a) What statistical data would be required?
(b) How would such data be utilized in the construction of the table?
(c) To what extent would personal judgment enter into this problem?

14. Discuss fully the advantages and disadvantages of using an indeterminate reserve table for the valuation of open cases in connection with the experience rating of workmen's compensation risks.

15. (a) State your views with respect to the application of a policy expense fee to policies providing automobile public liability insurance coverage.
(b) Enumerate five classes of benefits which may be provided by retirement systems for public employees.

16. How would you attempt to establish correlation between industrial accident rates and industrial activity?