

DISCUSSION OF PAPERS READ AT THE
NOVEMBER 1955 MEETINGTHE "WORKMEN'S COMPENSATION INJURY TABLE" AND "STANDARD
WAGE DISTRIBUTION TABLE"—THEIR DEVELOPMENT AND USE IN
WORKMEN'S COMPENSATION INSURANCE RATEMAKING

BARNEY FRATELLO

Volume XLII, Part II, Page 110

DISCUSSION BY L. W. SCAMMON

This paper describing the development and use of the Workmen's Compensation Injury and Standard Wage Distribution Tables is a most important one for workmen's compensation insurance. One has only to note the large number of amendments to workmen's compensation laws in the past few years and the relatively large percentage of premium collected which is dependent upon accurate calculation of the worth of these amendments to realize its importance. In addition, there is considerable evidence that an even greater reliance must be placed upon these tables in the years immediately ahead. Economic and social changes are demanding more and more liberalization of workmen's compensation laws. It follows that nothing less than the most accurate methods possible will be acceptable in calculating the advance worth of these amendments.

Recent voluminous and carefully screened and compiled workmen's compensation data have gone into these tables. The tables represent the ultimate in current representative data analyzed and presented after sound and intensive actuarial scrutiny.

THE "WORKMEN'S COMPENSATION INJURY TABLE"

For more than thirty years the American Accident Table effectively mirrored the pattern of accident expectancy in workmen's compensation insurance. Little can be said against it which will detract from its long record of usefulness. It stands as a tribute to its compilers that they were able to put together sufficient volumes of somewhat heterogeneous data into tables which stood up for over three decades. But the time inevitably came when the accuracy of the American Accident Table was challenged. To illustrate one such challenge, I recall that in 1949 law amendments in Massachusetts calculated to require approximately 30% increases in rate were tested under requirement of local authorities against what were considered adequate recent Massachusetts data and the Massachusetts data were used. Actually this was a mistake and subsequent events proved that the American Accident Table figures would have given more accurate results, but the challenge had been made and the not too recent data therein contained lost out.

With the decision made to produce the new Workmen's Compensation Injury Table, the problem became one of dealing with representative volumes of recent Workmen's Compensation data. Punch card methods made relatively easier a task which thirty years previously had been a much more formidable one. Also the practice of years of calculation of law amendment evaluations made easier the shaping of the pattern of tabulations, some to remain the same, others to provide new approaches to old problems.

The new Injury Table analyzes dependency and ages in 24,282 Fatal cases—about four times as many as the "Accident Table." The author leaves unexplained the drop in numbers from about 17,000 Fatal cases involving widows to only about 10,000 in the "Age Distributions of Widows—Fatal Disability Exhibit." Presumably this is because age data of widows were lacking on this large percentage of cases even though this is vital information in states providing pensions for widows.

It is interesting to note under the new Fatal Table that 13.9% of the Fatal cases left no dependents as compared with 22.8% under the American Accident Table.

Considerably more accurate deductions should be able to be made from the new Accident Distribution—Permanent Total—Disability because 2,900 cases vs. 454 cases in the American Accident Table are summarized. Apparently data were lacking in the early Twenties on other than dismemberment permanent total cases. In the new table the much more numerous head, back, paralytic and unclassified cases are brought in. One rather important and wise assumption was made, namely, that the dependency expectancy is the same for Permanent Total cases as for Fatal cases.

There is a substantial difference between the Permanent Partial distributions underlying the new and old tables. As the author points out, the American Accident Table shows 60% of the Major Permanent Partial and 75% of the Minor Permanent Partial cases are dismemberment or enucleation cases whereas the Injury Tables indicate that approximately 20% of the Major and about 15% of the Minor cases are dismemberment or enucleation cases. Seemingly this would point to the use of data more representative of current social conditions in the new analyses as well as the tremendous advances in safety practices now followed by industry and the advances made in the medical field.

An additional feature of the Workmen's Compensation Injury Table not available in the American Accident Table which should be enlarged upon is the loss of earning power in connection with Permanent Partial cases. In the Injury Table it is merely noted that for Other Permanent Partial cases, the average percentage loss of use is the same as the loss of earning power. Where this information is new for use in computing effects of law amendments, it would be desirable to have it explained more fully.

In connection with the table showing duration of Temporary Total Disability cases, some improvements and use of data reflecting cur-

rent economic and social conditions have been made. However, with respect to cases lasting 4, 5, 6 and 7 days, the total number of cases was filled in proportionately from the very limited data of the few states with such short waiting periods. For cases lasting 1, 2 or 3 days, reliance on the American Accident Table is continued. Probably the compilers could do little else at this time, but this is certainly an instance where the table should be revised as more data become available.

THE "STANDARD WAGE DISTRIBUTION TABLE"

Here, too, years of dealing with the problem and National Council Staff know-how were important factors in the putting together of a new wage distribution. The basic material, a study of 185,384 cases involving forty states, the District of Columbia and Hawaii, was obtained comparably to the semi-annual calls for wage data expanded to show the pattern of number of cases by wage interval amounts. The paper exhaustively sets forth comparative state and sectional wage distributions effectively accentuating the likeness of data and moving through processes of smoothing and testing which makes you agree the results are good. Any questions as to the giving of equal weight to each state's data dissolve as the processes of smoothing the data unfold. Here we see careful, accurate, concise, actuarial presentation of current statistical fact. Here we see actuarial science at its best.

No attempt is made herein to discuss application of the new tables to calculations of examples of specific amendments as set forth in the third part of the paper. Amendments will differ from year to year and from state to state.

Unquestionably the "Law Amendment Factor" is one very essential element in Workmen's Compensation Insurance Rate Making. This paper makes a determined effort to present fundamental Workmen's Compensation data in a manner that no uncertainty will remain in the calculation of the effect of law amendments. A real attempt is made to remove the element of controversy from this portion of rate making. This, therefore, becomes the singular contribution of this paper and the study that preceded it from an Independent Bureau viewpoint—it is the fact that the distributions have been brought up to date and their accuracy and adequacy are not open to question.

Even though it can be stated that the new accident distributions are not too different from the old distributions and that the calculated effects are not too different, the Workmen's Compensation Injury Table and the Standard Wage Distribution Table reduce the allegation that obsolete data have been used to measure the effect of law amendments. With this emphasis on the use of current data, the question may be raised of how long the new distributions may be used without revision or testing. Certainly it follows that tests should be made after the lapse of not too many years and one after another, as needed, the tables adjusted and brought up to date rather than let as much time elapse again between changes.

At a time when the economy is undergoing a continuing growth, the bounds of which appear unlimited, and at a time when the social and political philosophies seem to be trying to keep in step, this study resulting in the "Workmen's Compensation Injury Table" and the "Standard Wage Distribution Table" is one which the Insurance Industry could not well afford to be without. This paper is likewise a valuable contribution to Insurance Rate Making.

DISCUSSION BY J. H. BOYAJIAN

Mr. Barney Fratello, the staff of the National Council on Compensation Insurance, its Actuarial Committee, and the Subcommittee of Departmental Technicians of the Workmen's Compensation Committee of the National Association of Insurance Commissioners are all to be commended for the part which each played in bringing to so successful a conclusion a project of this importance and magnitude.

For many years, prior to the decision to revise both the "American Accident Table" and the "Standard Wage Distribution Table," if memory serves me correctly, there was a general feeling that even if these tables were revised it could be expected that in a high proportion of instances there would be only a nominal effect upon the valuation of Workmen's Compensation benefit changes. With minor exceptions, this judgment has now been substantiated. It is not my intention, however, to imply that this exhaustive study was in vain. Even if no purpose were served other than to demonstrate to the insurance-buying public the vital concern of insurance carriers and rate-regulatory authorities over rate-making techniques, the man-hours devoted to this project will have been well spent.

Mr. Fratello points out that the new "Workmen's Compensation Injury Table" and "Standard Wage Distribution Table" will produce results similar to those developed by the earlier tables, with the exception of changes involving the "healing period." Assuming a given compensation act already provides benefits during temporary disability in addition to those provided for permanent disability, increases affecting the healing period alone will have a greater effect under the new distribution, while increases affecting permanent disability alone will have a smaller effect under the new distribution. These particular differences should not be unusual. However, in the event of an amendment newly providing benefits during the "healing period" in addition to those for permanent disability, the valuations under the two distributions will differ substantially. Whatever the differences may be, they will be only of academic interest. As Mr. Fratello indicates in his paper, the experience from which the revised "healing periods" were developed was considerably more extensive as well as more pertinent than that used in determining these durations under the superseded table.

The inclusion among the permanent partial injuries of those cases expressed as percentages of permanent total disability is, in my opinion, a distinct improvement over the older table which made no

such provision. Amendments liberalizing permanent total benefits will no longer be confined only to these injuries, but will have a proper effect also upon major and minor permanent partial benefits. The listing of "healing period" durations by type of member, while not so important as the inclusion for the first time of permanent partial cases related to permanent total disability, is a further step in the right direction.

Due to the absence of data concerning the number of temporary disability cases lasting three days or less as well as the limited experience regarding the number of cases lasting exactly 4, 5, 6 or 7 days, judgment, with which there can be no serious quarrel, was exercised in the completion of the tables identified as Exhibit E-VI and F-V Part I. While there is both sufficient evidence as well as an explanation relative to the nature of column (4) its heading may be confusing to others as it was to me. The days disability shown in column (4), of course, reflect waiting periods which are one day less than the number of days shown in column (1).

Exhibit VI Part II contains evidence, in my opinion, to justify the decision to base law valuations for individual states upon the country-wide distribution of wages by size. The examples shown, based upon distributions of both "low-wage" and "high-wage" states versus the revised countrywide wage distribution for selected amendments affecting "low-wage" and "high-wage" states differently, are sufficiently close in their effects to warrant the disregard of a multitude of distributions.

Mr. Fratello's valuation, in Part III, of a hypothetical law amendment is comprehensive to the nth degree, which is all to the good particularly from the standpoint of students who may be called upon to study this paper. There is, however, a very minor point which might be raised to the effect that the "Workmen's Compensation Injury Table" as presented in this paper will rarely coincide precisely, from the standpoint of dependencies and types of scheduled injuries compensated, with those of a given compensation act. This being the case, Mr. Fratello will agree I am sure that it becomes necessary to adapt the table to suit the needs of each state. The benefit provisions of the California Workmen's Compensation Law as it affects permanent partial disabilities is an excellent example of just such a situation.

In the event of permanent injuries, the California law stipulates that four weeks of compensation shall be paid, at 65% of allowable average weekly earnings, for each 1% of disability. In addition, where the percentage of disability equals or exceeds 70%, deferred compensation shall be paid for life at a reduced percentage of the allowable wage. This percentage is taken as the difference between the percentage of disability and 60%. The percentages of disability referred to are in terms of permanent total disability. For the following principal reasons, the use of the "Workmen's Compensation Injury Table" is not adaptable to the valuation of amendments affecting permanent partial injuries in California:

1. The breakdown of permanent injuries by type does not coincide with the division in the revised table. As one example, the loss of both legs at or above the knees is considered to represent 95% of permanent total disability and in California is treated as a high cost major permanent partial case whereas in other jurisdictions it would be considered permanent total.
2. The percentages of permanent total disability for various injuries are subject to variation based upon age and/or occupation.

As a matter of interest, the distributions of permanent partial injuries currently being used in California for valuations of this nature are shown below:

Minor Permanent Partial

<u>Class Interval of Ratings, %</u>	<u>% of Cases</u>	<u>Average Rating, %</u>
.25- 4.75	36.70	2.77
5- 9.75	28.52	7.02
10-14.75	14.14	12.30
15-19.75	11.36	17.13
20-24.75	9.28	22.23
<u>.25-24.75</u>	<u>100.00</u>	<u>8.77</u>

Major Permanent Partial

<u>Class Interval of Ratings, %</u>	<u>% of Cases</u>	<u>Average Rating, %</u>
25-29.75	23.18	27.33
30-34.75	20.06	32.14
35-39.75	13.46	37.07
40-44.75	8.39	41.95
45-49.75	6.18	47.02
50-54.75	6.12	52.03
55-59.75	5.39	56.95
60-64.75	4.49	61.89
65-69.75	3.27	66.87
70-74.75	2.06	71.95
75-79.75	1.64	76.52
80-84.75	2.59	82.16
85-89.75	1.43	87.15
90-94.75	1.37	91.92
95-99.75	0.37	95.29
<u>25-99.75</u>	<u>100.00</u>	<u>43.14</u>

This exception to the use of the "Workmen's Compensation Injury Table" should not be construed as an adverse criticism, since for most compensation acts the table in its entirety is admirably suited for its intended purpose. My only point is to emphasize that care must be exercised in the application of this table.

As stated previously, all those connected with this project and particularly Mr. Fratello for his fine presentation deserve high praise.

NOTES ON NONCANCELLABLE HEALTH AND ACCIDENT RATEMAKING

ALFRED V. FAIRBANKS

Volume XLII, Part II, Page 89

DISCUSSION BY W. V. B. HART

It goes without saying that any material on noncancellable health and accident insurance emanating from Mr. Fairbanks' Company is well worth reading. His Company and a few others have been shining examples for many years of the fact that the word "noncancellable" does not necessarily mean financial disaster. It is now hard to realize that the word "noncancellable" was still spoken in hushed tones when the two latest papers on the subject were presented in our Proceedings—those by Mr. John H. Miller, Volume XXI, and Mr. Jarvis Farley, Volume XXVII. Accordingly, now that many life insurance companies have entered the health and accident field, many of them on a noncancellable basis, his paper is particularly timely.

As a matter of fact, its interest extends beyond the field of noncancellable insurance. Our Company recently brought out a commercial contract providing for loss-of-time insurance, with other benefits to be added by rider, and used essentially the rate-making technique illustrated in this paper. It is possible that in the future there will be quite a swing away from the traditional rate pattern in cancellable insurance of a single rate applicable to all ages of issue, or at least to two or three broad age groups, toward a more scientific pattern, in which case familiarity with the methods shown by Mr. Fairbanks becomes an absolute necessity.

It will be very interesting in due time to discover whether a widely spread sale of noncancellable insurance to a much larger cross-section of our population than has hitherto been covered will cause any appreciable change in morbidity levels. I might try to paraphrase some remarks of a colleague in the Society of Actuaries (spoken, however, in quite a different context): "You and some congenial friends have a nice little colony of summer cottages on the shorefront and everything is just quiet and lovely; then the general public begins to admire it and rushes in to buy all the surrounding property, and they spoil it all."

Confining myself for the moment to the nonmathematical aspects of this paper, if I were to take issue with Mr. Fairbanks on any point, it would be to question an implied undercurrent in the paper that principles of sound underwriting, good rate-making, etc., are peculiar to noncancellable insurance. I would say, rather, that the institution of health and accident insurance is indivisible and that all the basic underwriting principles which he mentions likewise apply to cancellable insurance. The differences may well be those of degree rather than kind.

The thought has been expressed that we are now going into an era

in which there will be not a hard and fast classification into non-cancellable and cancellable but, as another fellow-actuary has put it, into a "spectrum" of coverage comprising among others such patterns as:

- (1) insurance nominally cancellable, but with the privilege of such cancellation used very sparingly;
- (2) with the right to cancel not applicable to changes solely in physical condition of the insured;
- (3) with the right to increase premiums reserved to the company but applicable only to an entire class of policyholders;
- (4) various combinations of the above.

On the matter of mathematical technique, Mr. Fairbanks mentioned a pension fund type of formula and described in detail the sickness type. To round out the discussion it might be well to remind ourselves that the two types can be shown to be equivalent, as demonstrated by Mr. Miller on Page 341 of Volume XXVII of our Proceedings, showing that

$$H_z^{o/all} = {}^wC_z^r \text{ and } K_z^{o/all} = {}^wM_z^r$$

Obvious changes can be made for the various waiting periods.

The matter of whether lapse rates should have been taken into consideration in premium calculation is a rather fascinating problem and perhaps an insoluble one. If we are to assume that we are to have a free choice as to whether to introduce this element into the formula and that the same morbidity is assumed under either method, then the statement by Mr. Fairbanks is correct that the introduction of the lapse element gives the proper weight to the interaction of high initial expense and normal increase of morbidity with attained age. I am inclined to think that in most cases the "asset share" assigned hypothetically to a policy is usually positive after the first few years and therefore the omission of the use of lapse rates provides a hidden safety margin in the resulting level premium.

On the basis of classical theory, if we calculate rates using an intelligent projection into the future of discontinuance rates and morbidity rates experienced in the past, we probably obtain a fairly realistic premium. If the discontinuance rate of the future is higher than in the past, any additional gain from reserves released on lapses is likely to be used up by higher morbidity. If the discontinuance rate of the future is less than in the past, the gain from reserves released by terminations tends to disappear, but the morbidity should improve correspondingly. This is on the rather naive assumption that all bad risks normally persist and the good risks are the first to drop out. It is doubtful if human behavior is that simple. Even though, however, lapse rates are subject to human volition and may therefore be rather unpredictable, there should be some automatic offset in the claim rate. Since, however, the exact relationship between discon-

tinuance rates and favorable and adverse selection is unknown, we probably have no choice except to assume that, in general, discontinuance rates and morbidity rates of the future will tend to reproduce the past.

A rather good practical and conservative rule has been formulated by some actuaries in connection with life insurance rates that if the use of discontinuance rates produces a higher premium, they should be taken into account but, if it produces a lower premium, they should be ignored. The problem of life-insurance rate-making is, however, not entirely comparable.

The hypothetical example of expense rates outlined by Mr. Fairbanks is an excellent example of the type of rate study necessary as a preliminary step toward any level premium calculation. Although his factors are hypothetical, when they are compared with some adopted in our own Company about two years ago, his figures appear to be of a realistic order of magnitude. He seems to have assessed relatively more of the expense as a percentage, while we have assessed more "per policy." Likewise, we seem to have a greater tendency than he toward packing expense into the first policy year. We have introduced also the concept of claim expense as distinct from issue or handling expense.

Such differences between companies in the attack on an expense problem are not uncommon, since cost accounting in insurance cannot, in my opinion, be an exact science. The important thing is to get all the expense in somewhere. The fact remains that, after allowing for the fact that our sales expense is measured from a branch office point of view rather than from that of a general agency, the overall loading at which we arrive for all expenses combined is little different from his. I might add that our average size of policy assumption was quite close to his, but the actual results since the policy was put on the market have revealed an average size about double that assumed.

DISCUSSION BY S. W. GINGERY

Mr. Fairbanks' excellent paper has helped to fill a definite need for more information on the subject of ratemaking for Health and Accident coverage.

The lack of suitable morbidity data referred to by Mr. Fairbanks is one of the most difficult problems the actuary is confronted with. The Committee on Experience Under Individual Accident and Sickness Insurance of the Society of Actuaries has completed plans for collecting on an annual basis, inter-company experience under policies providing benefits for total disability from sickness and under policies providing benefits for total disability from accident. Data will be compiled initially in 1956 for claims incurred in 1955. Although data from the various companies will not be entirely homogeneous, nevertheless, experience tables that are developed should prove to be extremely helpful.

The gross premium formulas used by Mr. Fairbanks are similar to

those used by Mr. Cammack in his paper, "Premiums for Non-Participating Life Insurances" (T.A.S.A., XX, 379). Mr. Cammack, however, did not introduce lapse rates in his calculations. The method used by my company to compute gross premiums for both loss of time policies and hospital expense policies is based upon the method developed by Mr. Hoskins in his paper, "A New Method of Computing Non-Participating Premiums" (T.A.S.A., XXX, 140).

Mr. Hoskins' method makes use of the fact that an accumulation is customarily made as part of a premium investigation. The fund accumulation, which we call an Asset Share, is obtained at the end of each policy year and represents, for a particular age and plan, the persisting policy's share of the assets, i.e., income less disbursements. The accumulation takes into account termination rates, an interest rate and all elements of expense.

It is very probable that Mr. Fairbanks obtains a fund accumulation at the end of each policy year, at least for some plans and for some issue ages. This is a technique which the actuary will find useful in obtaining a proper rate structure.

In order to provide an illustration of this technique, I have taken Mr. Fairbanks' assumptions as to expenses, average size of policy, etc., and introduced assumptions as to persistency rates. For morbidity I used net annual claim costs from the Conference Modification of the Class 3 Table. By using the formula in the paper, I obtained an annual gross premium per \$1 of weekly benefit for a policy issued at age 45, coverage to age 65, with an indemnity benefit of 1 year and 1 week elimination period. In order to provide for a margin for contingencies and dividends (or for profit in the case of stock companies), I arbitrarily increased the gross premium by 10%. Of course, the 10% increase is diminished by per premium expenses.

I then used an accumulation formula to obtain the fund accumulation at the end of each policy year. I found that the fund does not become positive until the 8th policy year. A company is, of course, required to set up reserves so that it is not until about the 12th policy year, if all assumptions are realized, that a margin first emerges. Of course, if I had increased the calculated gross premium by more or less than 10%, then the margin would have emerged sooner or later than 12 years. If age 20 instead of age 45 had been used, it would have taken a much longer time for the fund to be positive. This estimated number of years required for a given block of business to become profitable would be of particular interest to a company entering the business for the first time.

A company issuing accident and health coverage on a participating basis, such as my company does, could determine a gross premium such that the fund accumulation at the end of the nth policy year is exactly equal to the nth year terminal reserves. Based upon actual experience as to expenses, morbidity and persistency, dividends can be paid when the fund reaches a positive position.

Mr. Fairbanks indicates that loss ratios can be used to check on the actual experience. The traditional loss ratio fails to give any

accurate indication of how the actual rates of morbidity being experienced compares with the morbidity assumptions on which premiums are based. In order to test the adequacy of asset share morbidity assumptions, we obtain ratios of actual to expected claims for each calendar quarter. Expected claims are obtained by applying the net annual claim costs assumed in our asset share calculations to exposures determined from our inforce statistical punch cards.

With regard to a reserve for maternity benefits, I might add that a reserve is required only if the coverage under the policy extends 9 months following date of lapse providing pregnancy had its inception while the policy was in force. Where a policy only provides maternity benefits for hospital confinement while the policy is in force, no reserve for deferred maternity benefits is required since, in that situation, the claim is incurred as of the date of hospitalization.

OBSERVATIONS ON STATE TAXATION OF CASUALTY
AND FIRE INSURANCE COMPANIES
EDWARD C. ANDREWS

Volume XLII, Part II, Page 97

DISCUSSION BY E. C. MAYCRINK

The first observation which occurs to me on the subject of Taxes is what is said of the weather—everyone talks about it but nobody does anything about it. Mr. Andrews has done something about it. This paper deserves to be read and reread even though you do not happen to be the one who must continuously face the preparation of the innumerable and heterogeneous tax reports. It is difficult to grasp the many tax requirements outlined in the paper (probably because one is allergic to the word "taxes") and it must have been difficult to encompass the various laws in one paper. These laws cover forty-eight various state and lesser jurisdictions. A reference to the latest index of the *Proceedings* would seem to indicate that this is the first paper on taxation. It should be kept on the agenda.

Usually one thinks immediately of how much tax we have to pay, and that of course is important. The author, however, mentions first the service performed by every insurance carrier for each state in which it is admitted to do business, viz., collection of taxes from the policyholders and the accounting for and return of these taxes to the various state and local taxing authorities. This points up and directs our thoughts to one of the many things which is usually taken for granted. The companies show in their annual statements the amounts paid to states as well as to the federal government and the municipal and other governing bodies. Tax factors are included in the expense portion of the rates. Mr. Andrews has shown in Exhibit A some of the many types of taxes as outlined in the instructions for uniform classification of expenses. But little thought has been given to the time-consuming work and the expense to companies, and eventually, of course, the expense to the policyholders for tax collection.

It is interesting to note when we look back over the history of supervision of insurance in this country, and particularly in the State of New York with which I am the most familiar, that taxation came first. In 1824* the State of New York imposed a tax of 10% on the premiums received in that state by fire insurance companies incorporated in other states. Other states followed suit. Naturally, periodic reports were devised to guard this substantial revenue. Returns have to be audited, and along the lines of the old nursery rhyme, "This is the House that Jack Built," the beginnings of supervision of insurance grew to the imposing edifice it is today. All of this could be considered logical and reasonable, but the question arises in the author's mind, and we must certainly agree with him, that, in general,

* "Insurance," Mowbray & Blanchard.

excise taxes are imposed on the so-called luxury items with essential items excluded. Can insurance, particularly Workmen's Compensation insurance, be considered a luxury item? Rather is it not an imposition on the thrift of the policyholder who must needs protect himself against disaster and in fact is compelled to buy protection in some cases, such as workmen's compensation.

There is no doubt that insurance supervision has benefited the insurance companies, the policyholders, and the public at large. Mr. Andrews cites tax figures for the year 1953. An article by Elmer Miller in the *Journal of Commerce*, May 4, 1956, gives the figures on taxes for a later date. Federal taxes for carriers writing all kinds of business amount to approximately \$800 million a year, not including social security. The state taxes in 1955 amounted to approximately \$340 million as compared with the \$328 million in the 1954 survey. Of this amount, \$16.4 million was for state supervision as compared with the \$13.5 million shown in the earlier survey. Even though we accept the fact, and have become conditioned to it, that taxes on insurance represent a burden on the thrifty, and that they produce large revenues to be used for purposes other than state supervision of insurance, is it necessary that tax reporting be made difficult and an added burden and expense to the insurance companies?

As we read of the multifarious laws imposing different rates on different bases, net premiums, gross premiums, return premiums, and so forth, the complications when reinsurance enters the picture and the retaliatory taxes, we face confusion worse confounded.

Certainly there should be a way to try for uniformity, if not in the rate of tax each state levies, at least something could be done towards uniformity in filing forms and less onerous requirements of unnecessary detail.

Although I stated above that nobody does anything about taxes, Mr. Andrews, in Exhibit B, has given us a copy of a letter from the Association of Casualty and Surety Executives praying for relief because of help shortage in war time. It is hoped that Mr. Andrews' paper can be followed up, and through the efforts of the National Association of Insurance Commissioners at least the burden of the mechanics of collection can be made lighter. It should not take a war to ask for relief from unnecessarily complicated requirements from so many different jurisdictions. The companies, through their respective organizations, should renew the plea for simplification of this Sisyphean task.

DISCUSSION BY J. A. RESONY

Mr. Andrews has done a distinct service to the Society in presenting this paper on a subject which has heretofore had very little consideration in our Proceedings. The paper should be of considerable value especially to students of the Society preparing for the examinations.

Mr. Andrews starts his paper by making the point that the state premium tax has become a major source of income for the general

funds of most states and that this tax is in fact an indirect tax on most of the residents of the state. This is conceded. However, it must be realized from the viewpoint of the taxing authorities the premium tax approaches the ideal tax situation. Here we have a tax with the broadest of bases, susceptible to accurate verification, and with a very small cost of collection. It is fortunate indeed for the companies or the policyholders that the retaliatory tax statutes of other states make it impracticable to do much about increasing the rate of tax.

I can not help but comment on two references made to the tax situation in Connecticut. First, I am sure Mr. Andrews does not mean to imply that Connecticut companies are under any special disadvantage in paying the expenses of their examinations by the Connecticut Department something incidentally which they have done only since July 1, 1953. Domestic companies pay the cost of examination in about three quarters of the states. Secondly, with regard to the Connecticut investment income tax there has been a program to reduce both the rate of tax and the percentage of the investment income to which it applies gradually over a period of years while keeping the dollar amount of tax yield about constant. This program was halted, temporarily at least, when the 1955 General Assembly refused to enact the usual biennial reduction.

The operation of the retaliatory features of the tax laws is complicated and produces many strange results. For instance because of the extra revenue needs of the State of Connecticut produced by the floods of 1955 it was proposed that all state taxes be increased. A bill was drawn to increase the premium tax on the Connecticut business of all insurance companies. However when the effect of other states retaliatory laws was realized the bill was amended to apply to only the Connecticut business of Connecticut companies.

The question of whether a retaliatory tax is to be applied "item by item" or on an aggregate basis is as the author states answered differently in different states. Vance's Handbook on the Law of Insurance (3rd edition, revised B. M. Anderson) states "The retaliatory features are usually but not always construed on an 'aggregate' and not on an 'item by item' basis." On the other hand the Attorney General of Connecticut ruled in 1950 that the Connecticut statute (quite similar to the Minnesota law quoted) is to be interpreted on an "item by item" basis.

An interesting question arose recently in connection with a large Ohio Company. This company omitted from its tax base workmen's compensation insurance premiums written in Connecticut on the ingenious grounds that since Ohio has a monopolistic state fund no Connecticut Company (with minor exceptions) could have any workmen's compensation premium in Ohio. However since the effect of the Connecticut retaliatory law is to impose the higher of the Connecticut rate of tax and that of the home state the Department held that the Connecticut rate of tax applied rather than no tax at all. As a result over five thousand dollars additional taxes were collected.

The Connecticut retaliatory statute contains an interesting provision directed at the New York City gross receipts tax reading as follows:

"When by the laws of any other state or foreign country any premium or income or other taxes, or any fees, fines, penalties, licenses, deposit requirements or other obligations, prohibitions or restrictions are imposed upon Connecticut insurance companies doing business in such other state or foreign country, or upon the agents therein, which are in excess of such taxes, fees, fines, penalties, licenses, deposit requirements or other obligations, prohibitions or restrictions directly imposed upon insurance companies of such other state or foreign country doing business in Connecticut, so long as such laws continue in force the same obligations, prohibitions and restrictions of whatever kind shall be imposed upon insurance companies of such other state or foreign country doing business in Connecticut. Any tax obligation imposed by any city, county or other political subdivision of a state or foreign country on Connecticut insurance companies shall be deemed to be imposed by such state or foreign country within the meaning of this section, and the insurance commissioner for the purpose of this section may compute the burden of any such tax obligations on an aggregate statewide or foreign-country wide basis as an addition to the rate of tax payable by similar Connecticut insurance companies in such state or foreign country. The provisions of this section shall not apply to ad valorem taxes on real or personal property or to personal income taxes."

Accordingly the Connecticut Department each year requires each domestic company to report the premium taxes paid to New York City and New York State. These returns are compiled and the extra burden imposed by the City tax is figured as a percentage of the State tax (separately for life and fire and casualty premiums). Each New York company is then billed for this percentage of the amount of premium tax already paid to Connecticut.

Other situations arise under the retaliatory statutes quite aside from the variety in rates. Taxes are due on different dates in the several states. In Connecticut the due date is April 1 for non-resident companies although as a matter of convenience most report and pay with the filing of the annual statement. In California the due date is August 1 and California companies have tried to convince the Connecticut Department that they should be allowed discount for paying March 1 or April 1 but the argument has been refused.

Casualty companies report premiums quarterly to New York and pay quarterly taxes. A bygone Connecticut Attorney General ruled that Connecticut must by retaliation similarly require quarterly returns from casualty companies of New York. From the standpoint of clerical costs in the Connecticut Department this is a fine example

of cutting off the nose to spite the face.

I am in complete agreement with the author's opinion that distinctions between fire and casualty companies for tax purposes (or, indeed, for most other purposes) are anachronistic. Connecticut makes no such distinction. Under present conditions preparation of tax returns for many states—or even the auditing of returns from companies of many states is not a simple task. Greater uniformity in laws would help and should be promoted by all appropriate means. Differential tax rates, discriminatory though they may be, have not in actual fact impeded company progress. Company prestige and aggressive selling seem to have been more important.

THE MULTIPLE-LINE PRINCIPLE

G. F. MICHELbacher

Volume XLII, Part II, Page 75

DISCUSSION BY L. H. LONGLEY-COOK

As the actuary of a company whose President, Mr. John A. Diemand, has been a leader in the movement to introduce the Multiple-Line principle into our insurance practices, it gives me very great pleasure to be asked to submit a written discussion of Mr. Michelbacher's excellent paper. Those who have played an active part in the developments which have occurred in these last 15 years, so momentous in the history of insurance, will enjoy reading the author's clear development of the story and those who have been on the side lines and have not been closely concerned with each new step, will find this paper will give them a much closer insight into the problems with which we are presented today.

There are no doubt some who trace to the introduction of the multiple-line principle, many of the problems and difficulties with which the insurance industry is faced today. It is true that these changes have produced many problems and headaches, but when we consider the vast improvement in service to the public which has resulted from multiple-line underwriting, we can but accept these problems as the inevitable result of progress.

The author has set out so well the history of what has happened in the last 15 years that there is little that can be added by way of discussion to the main body of the paper. It is perhaps wise, however, to add the comment on the section headed Inland Marine that some authorities have grave doubts of the legality of the Commissioners, in their attempt to provide a practical solution to the problem of the definition of Inland Marine business, allowing a private body, the Committee on Interpretation of the Nationwide Marine Definition, to usurp their individual duty to administer the law of their respective states.

There has been one new development since the paper was written which should be recorded. The Committee on Blanks of the N.A.I.C. recommended the inclusion of two new lines in the annual statement and two new columns in the Expense exhibit:

Homeowners Multiple Peril
Commercial Multiple Peril

to provide for the "reporting under various types of combined coverage package policies not otherwise classified."

It is to the solution of current problems I particularly want to refer and it is convenient to take in turn, the points on which the author touches in the penultimate section—Problems Created by Multiple Line Legislation.

I am a firm believer in the advantages of the use of the indivisible premium for those classes where the total premium is small. I have

been closely associated with the Homeowners policy since its inception, and there is no question that the phenomenal success of this policy lies in the use of an indivisible premium. The indivisible premium greatly reduces the work of the agent, both in his dealings with his client and in the preparation of the policy. Further, an indivisible premium leads to real savings in the statistical work of the insurance company and develops credible statistics considerably more rapidly. Today, in the Homeowners Policy, we have a very clear picture of the policy experience and can readily interpret the cause for unfavorable experience should it develop in any territory. The technique of an indivisible premium combined with the analysis of losses by cause has proved one of the most valuable ever developed. On the other hand, I am doubtful if any insurance company has detailed knowledge how experience is developing under the corresponding divisible premium policy, the Comprehensive Dwelling Policy, and few companies can say even if their total experience under these policies is profitable or not. Certainly, the rate makers are completely in the dark as to the adequacy of the rates they promulgate.

The indivisible premium is not, of course, a new concept. It is the traditional approach to the multiple peril problem before fire and casualty perils could be combined in a single contract. The Extended Coverage Endorsement comes immediately to mind a multiple peril coverage with an indivisible premium; nearly all Marine business is multiple peril in nature, and the Comprehensive Personal Liability Policy replaced earlier—special risk coverages.

With commercial multiple-line policies, both the divisible and the indivisible premium have advantages, the one providing more flexibility, the other greater simplicity.

The effect of multiple-line underwriting on insurance companies is only now being really felt. Most of the larger insurers have at least one fire and marine company and at least one casualty company. The companies have often very different agency organizations, and the possibility of multiple-line underwriting has led to many company reorganizations, and the closer integration of the companies in a fleet, often by pooling arrangements.

The new policy forms have shown the need for special departments handling multiple-line policies and this in turn has led to new accounting problems. We are used to the subdivision of the expenses of a fire or casualty department over a number of lines in the expense exhibit, but we now have the more complex problem that business in an individual line may be developed by more than one underwriting department. As an actuary with a British background, I look wistfully at the returns required of a British insurance company which, if we exclude Life Insurance, involve only 5 lines of business Fire, Automobile, Casualty (Accident), Employers Liability and Marine (including Aviation and Inland Marine).

The Insurance Departments have been presented with a most difficult problem in trying to administer rate regulatory laws with the flood on new policy forms and rating plans. Developments which have

been stifled for years by the old restrictive laws are now coming so fast that they are difficult to digest. Insurance departments have tried their best to deal with their difficult problems, but it seems to me that the present system of having to obtain approval for any new rating plans in 48 states is most uneconomic and unreasonable. To restrict new developments as some people in the industry advocate would not be in the best interest of the public and I would prefer to see the general adoption of a rating law similar to that at present in use in California where Departmental approval of each new rating plan is unnecessary. I find it difficult to understand why there should be such a great need to regulate fire insurance premiums while Ocean Marine and Life Insurance premiums need no regulation.

DISCUSSION OF PAPERS READ AT THE MAY 1956 MEETING

A REVIEW AND COMPARISON OF WORKMEN'S COMPENSATION
EXPERIENCE IN NEW YORK STATE AND WISCONSIN

FRANK HARWAYNE

Volume XLIII, Part I, Page 8

DISCUSSION BY D. R. UTHOFF

Mr. Harwayne has made a further contribution to the puzzling question of analyzing state differences in compensation costs and rates. Using his paper in conjunction with Mr. Johnson's 1953 paper and Mr. Goddard's discussion, we now have substantial printed word to give us confidence as we employ a relatively modern method of making these comparisons. Up to a few years ago, the National Council had been issuing a table of state benefit level indexes which most people looked upon as dependable despite the Council's repeated warnings that many factors other than benefit provisions needed consideration. Some broad assumptions had to be made in calculating that table, such as one common average wage for all states, no administrative variations, assumption of identical medical cost levels, and so forth, so that if a benefit index comparison between two or more states was at all close to a comparison of actual average rates, luck had much to do with it. In the present instance, a calculated benefit level might make Wisconsin look about 20 per cent more expensive than New York, but Mr. Harwayne's actual rate comparisons, using identical payroll distributions by class, either New York or Wisconsin's, makes Wisconsin look about 45 per cent cheaper. Mr. Harwayne shows us a way of handling actual experience in searching for the answer to what amounts to one basic question: Are the lower Wisconsin rates due to lower frequencies per payroll units, or are they due to lower cost conditions, or to what extent do each of these factors operate? From his experience analysis he concludes that frequencies are only slightly less and that lower cost conditions in Wisconsin play the most important part.

Perhaps I still have a soft spot for benefit calculations, having been friendly with them for some years, and they are still very useful and probably quite accurate in evaluating current benefit changes within each state. I suggest they may also be useful in refining actual experience figures if we keep a weather eye open as to what they can occasionally do for us. Here we have a case of the Wisconsin frequency figures having been inflated by a very small waiting period—three days' retroactive at ten days compared to New York's seven days' retroactive at thirty-five days—adding little to cost but considerable in numbers.

We have in our Proceedings the new Workmen's Injury Table as presented by Mr. Fratello and we need refer to only a small part of that, the distribution of temporary total cases by duration, to see what the Wisconsin frequency might have been if the New York waiting period had been in effect. The adjustment should be reason-

ably accurate inasmuch as Wisconsin is one of the few states having such a small waiting period and Wisconsin cases contributed materially to the temporary total distribution table. The table indicates that Wisconsin had 36 per cent more temporary total cases than it would have had if the New York waiting period applied, and following that adjustment through the policy year 1951 and 1952 experience, the result is an indicated indemnity frequency about 30 per cent less than New York's, instead of approximately 10 per cent less as indicated by the raw experience. Since Wisconsin rates are shown to average about 45 per cent less than New York's, and rates are products of frequencies and average costs, it follows that Wisconsin costs are 20 per cent less than in New York.

Thus, if one were to make a thorough investigation of the physical factors responsible for the substantial rate level difference between the two states, he would direct his attention to finding the reasons for New York's greater frequency of claims as being more important than cost factors, and we might note that since the latter may be so closely allied to state economic conditions, correction or change might be found relatively difficult.

Through analysis of selected pure premiums and rates, Mr. Harwayne finds that pure premiums from which class rates were calculated represent 70 per cent of rates in New York but only 55 per cent of rates in Wisconsin, and then concludes that although insurance costs are higher in New York, the proportion of manual dollars incurred in benefits is greater in New York than in Wisconsin, presumably to the degree of 70 per cent versus 55 per cent. That conclusion may be somewhat abrupt without further analysis. Actually, New York expense requirements for manual rates are greater in New York. The 1955 rate revisions anticipated 57.4 per cent for losses in New York and 59.6 per cent in Wisconsin, the main source of difference being the New York Workmen's Compensation Board assessments.

The New York pure premiums were calculated on the 1948 to 1952 experience level, quite a bit different from the final rate level based on the composite year July 1952 through June 1953, and the calendar year 1954. In the final step from proposed pure premiums to rates, correction factors of .8276 on indemnity and .8450 on medical were applied, in addition to a factor on payroll classes of .987, these averaging about .82 over-all. Applying .82 to Mr. Harwayne's 70 per cent pure premium ratio gives us 57.4 per cent as loss expectation, happily coinciding with the permissible loss ratio.

The 55 per cent Wisconsin ratio of pure premiums to rates is below the 59.6 per cent expected loss ratio because of inclusion in rates of the general and specific hearing elements, a later law amendment not included in the original pure premiums, a rate level adjustment factor, and a final balancing factor to obtain the required rate level. Though actual adjustment of pure premiums to the level contemplated by final manual rates would be somewhat complicated, there is little doubt we would wind up with a ratio close to the 59.6 per cent

portion expected for losses. Thus it would seem that the permissible loss ratio underlying each state's rates would have to be taken as the measure of benefits incurred in manual premiums: 57.4 per cent in New York and 59.6 per cent in Wisconsin.

A HISTORY OF THE UNIFORM AUTOMOBILE ASSIGNED RISK PLAN

ELDEN W. DAY

Volume XLIII, Part I, Page 20

DISCUSSION BY H. E. CURRY

As the title indicates, this paper outlines the historical situations that stimulated thoughts of an automobile assigned risk plan.

Mr. Day is well qualified to write on this subject because he has been an active participant in all of the discussions and planning that have been necessary to bring about the degree of essential uniformity that exists today. Having been present at several of these sessions, I can attest to the fact that the author has approached the many problems realistically, and been logical and persuasive in his thinking.

Since this paper is a history of the Uniform Automobile Assigned Risk Plan the author has endeavored to chart the events, in chronological sequence, that led up to the consideration and development of the Uniform Plan. In reading the paper for chronological sequence I did not perceive any statements, at least of any consequence, that vary from my recollection of developments.

The introductory section of the paper impressed me as somewhat of an intermingling of what has occurred in workmen's compensation insurance, in a similar situation, and the reasons why an assigned risk plan is needed for automobile insurance. This intermingling of historical facts and logical thinking tends to obscure the motivating reasons that have prompted assigned risk plans for automobile insurance. To the average reader if this section were divided into a historical summary of what has occurred in workmen's compensation insurance and a statement of the need for comparable treatment in the automobile field the reader's interest could be aroused more quickly and enthusiastically. This section contains the only variance from history I noted and is a variation for which the author should not be held accountable because the incident referred to is not recorded so far as I know. About two years prior to the time that Industry groups began considering an automobile assigned risk plan the idea was outlined to me by my predecessor, Mr. R. C. Mead. I encouraged him to discuss his idea with A. E. Spottke and J. M. Muir to determine industry interest. This was done and their respective rating organizations took the initiative in translating the idea into a concrete form. This paper picks up at this point.

The paper contains a rather detailed discussion of the provisions included in the first automobile assigned risk plan placed in operation, which was in the state of New Hampshire. This is a worthwhile reporting because, by comparing it with the plans in prevalent use today, it is relatively easy to isolate the general areas where changes have been necessary either to meet public needs or to improve operational practice.

Included in the discussion of the New Hampshire plan is a fairly complete reproduction of the provisions of the plan. This general

pattern of presentation is maintained throughout the paper.

If I were to offer a general suggestion for improving the readability of the paper it would be in the area of arrangement. I would favor removing the portions of lengthy quotations from the various Plans from the body of the text and incorporating them as a series of appendices. Such a shift would segregate the author's comments from the quoted matter and make it more easy for the casual reader to follow the author's discussion. As it stands there is some tendency for the reader's thoughts to be diverted toward specific Plan provisions rather than to follow the flow of historical facts.

The paper records the sequence in which a Plan, identical or similar to the New Hampshire Plan, was adopted for other states. This running comment is supplemented by a tabulation at the end of the paper showing, for each state, the effective date of the Plan for the state.

The first New York Plan is discussed in some detail because it contained important differences from the then prevailing plans. Some of these changes reflected modifications indicated as necessary because of experience and others were included to handle situations known to exist in a densely populated area. Of particular interest in this discussion is the "Interpretation of 'Good Faith'" which is still frequently referred to in coping with problems relating to this section of currently effective plans.

The development of the so-called "Uniform Plan" is clearly outlined. The manner in which the Uniform Plan was developed is significant. It demonstrates the way in which the industry and state regulatory bodies can cooperate to solve problems for the benefit of the buying public generally.

In his review of the Uniform Plan the author points out that the objective has been to attain essential rather than absolute uniformity. This concept, as he states, has not always existed but it is realistic and has resulted in greater support of the Uniform Plan than would have otherwise existed.

Certain of the vital sections of the Uniform Plan receive individual attention and comment. Historically this is desirable because this record of current thinking will be of value in charting the future developments of the Uniform Plan.

The last two sections of the paper are devoted to a summary of growth of automobile assigned risk plans and comments on the loss experience of risks handled by the plans.

The dollars of premium paid by assigned risks makes this an important segment of our business meriting attention to its administration. This volume of business becomes of greater stature when we consider the relatively high loss ratios which it develops.

The author closes his paper with a positive statement of the "service" value of the automobile assigned risk plans to the public and the industry. He cautions against becoming convinced the plans are now perfect. He also expresses confidence that present and future problems in this area can be solved within the framework of a free enterprise system.

This paper is a valuable contribution to the records of this Society and the author merits our thanks for a job skillfully and accurately executed. I would like to have this same author, or other member of the Society, prepare a paper examining the philosophy underlying the Uniform Plan provisions and detailing the steps that can, and should, be taken to limit the quantity of risks that find it necessary to use this facility to secure insurance. It is interesting to speculate on the decline in volume the assigned risk plans would enjoy if sound underwriting principles could be incorporated into driver licensing statutes.

STATISTICS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS

J. H. FINNEGAN

Volume XLIII, Part I, Page 82

DISCUSSION BY CLYDE H. GRAVES

Dr. Finnegan has presented in his paper "Statistics of the National Board of Fire Underwriters" a clear picture of the type of data on Fire and Allied Lines Insurance currently being collected by the National Board. In summary, the data may be grouped under the following headings:

- (1) Fires Losses by Cause of Loss
- (2) Premiums and Losses by Classification
- (3) Expense Experience by State and Function
- (4) Catastrophe Losses

The "Classification of Fire, Property Damage" presented in the appendix is the list of occupancy classifications adopted by the National Association of Insurance Commissioners as the "Uniform Statistical Plan." This plan has been adopted by most states as the basis for collecting fire and allied lines experience of all companies—stock, mutual and reciprocals. Dr. Finnegan makes some very brief remarks with respect to the development of this classification system indicating that it was a reduction from an original classification system containing 584 occupancy classes but he does not discuss the relationship of the classification system to the making of fire insurance rates. No doubt in selecting the title to his paper he purposely intended to limit the discussion to the type of premiums and losses data being collected by the National Board and to leave to others a discussion of the use of such data in rate making and rate reviews. From the data reported to the National Board, these three types of reports are prepared:

- (1) An annual report of Premiums and Losses by Classification
- (2) A report presenting the Premiums and Losses by Classification for a five-year period
- (3) An earned premiums and incurred losses report.

Dr. Finnegan in his paper states that the National Board had developed a Statistical Plan for Earned Premiums and Incurred Losses which provides for a reporting of premiums by term of policy and "per cent of manual" as well as by state, Major Peril and Occupancy Class. An illustration is given showing how earned premiums for a given classification are calculated. It is to be noted that a modification of the statutory factors are made based on a special report of countrywide Direct Written Premiums and contributions to "In Force." It would be of interest to know to what extent the statutory factors are modified by this adjustment and to what extent the earned premiums over a five-year period would differ from those calculated by the use of the statutory factors unadjusted. Although the paper mentions that premiums are reported by "per cent of manual," it is not clear from the paper whether or not premiums are adjusted to a manual rate basis for the preparation of earned premium.

Dr. Finnegan states that "The Purpose of the Expense Plan was to produce for any given state and year figures representing total expenses on direct business for fire, extended coverage and other allied lines." This plan is essentially an extension of the Insurance Expense Exhibit which presents countrywide expense data. A plan whereby expense data for each state is produced appears to be necessary in view of the 1949 Profit Formula.

Only a brief paragraph is devoted to "Catastrophe Data" and it would be of value to have more information on this subject, especially as to use of catastrophe data in fire rate making.

In summary, Dr. Finnegan has presented an interesting paper outlining the statistical work of the National Board of Fire Underwriters. In view of the rather recent extension of the scope of activities of the Casualty Actuarial Society to include fire and allied lines, it would be desirable if future papers were presented to the Society covering the use of the data collected by the National Board in the making of rates.

REVIEWS OF PUBLICATIONS

JOHN W. WIEDER, JR., Book Review Editor

Casualty Insurance, Clarence A. Kulp, Third Edition, The Ronald Press Co., New York, 1956, Pp. xi, 635.

It is axiomatic that any book on the broad subject of casualty insurance is out-of-date in some respect on the very day it comes off the presses, and that it becomes more outdated as the years go by. And yet, because the Revised Edition of this text, published 14 years ago, was, in Mowbray's words, "a well-planned, well-balanced treatise on casualty insurance," its continuing use created an insistent demand upon Dr. Kulp to bring forth the Third Edition.

The problem of definition of the term "casualty insurance" has always existed, but the trend in recent years to comprehensive policy writing and multiple line underwriting has made the definition even more difficult.