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PROCEEDINGS

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NOTICE

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

"The world rolls, the din of life is never hushed."

—*Ralph Waldo Emerson*


TESTIMONIAL DINNER TENDERED TO
RICHARD FONDILLER
BY THE
CASUALTY ACTURIAL SOCIETY
HOTEL BILTMORE NOVEMBER 19, 1953
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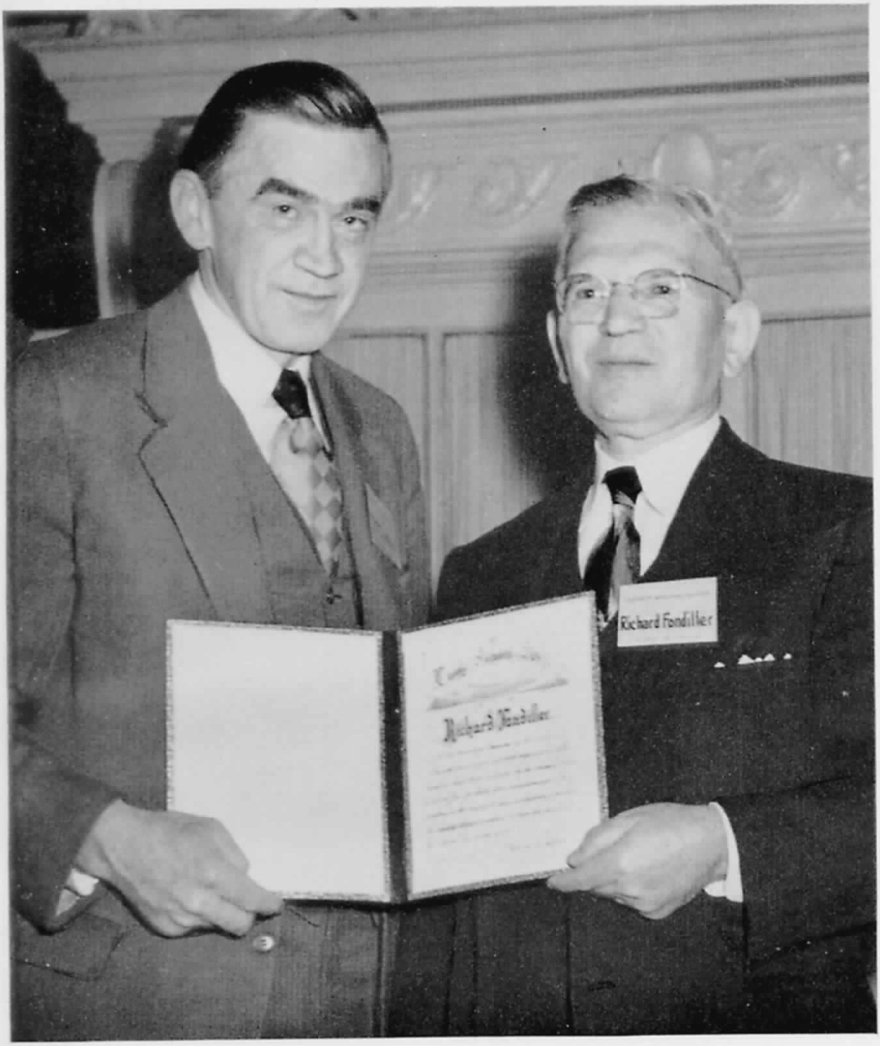

President THOMAS O. CARLSON *presenting tribute to*
MR. RICHARD FONDILLER

Vol. XL, Part I No. 73

PROCEEDINGS

May 21-22, 1953

STATISTICS FOR THE RATEMAKER

PRESIDENTIAL ADDRESS BY THOMAS O. CARLSON

We are in the midst of a ferment among executives and among supervisory officials alike relative to the bases and the details of the loss statistics to be used in ratemaking. This ferment extends over the casualty and the fire lines. Much of it, as is customary with any fermenting process, is caused by an excess of air bursting explosively to the surface. This disturbance is so widespread, nevertheless, that it must be viewed as a symptom of dissatisfaction, whether with procedures or with results, and it behooves the actuary to study the ferment and to seek means of utilizing it productively.

But initially there should be a clear understanding of principles, and what I wish to do today is to discuss the cross-currents of ideas that underlie the development of the plans now in effect, with no more than illustrative references to actual details. A proper perspective is necessary before we can hope to attain a reasonable solution of our problems.

Although this Society comprises the fire and casualty segments of the industry, the process of amalgamation is not yet complete enough for me with an entirely casualty background to speak for the fire interests, so that my remarks will be confined essentially to the casualty lines.

RATEMAKING A COMPROMISE

The ratemaking process represents always a compromise between conflicting indications of evidence, some of it statistical in character, some drawn from considerations involving a review of existing practices and of current economic developments. The review of existing practices may go into questions of coverage, of territorial definition, of claims conditions, and of competition, among other points. But the emphasis I wish to make is that the entire process is a compromise of conflicting evidence, not an inevitably accurate and scientific calculation. And where a number of companies rather than one company is involved, the further element of compromise of conflicting interpretations comes into play. All of this, before the supervisory official enters the picture! The only predictive statement on which I as an actuary would be willing to stake my reputation is that individuals will continue to disagree in their interpretation of statistical and economic data.

Actuarial accuracy is not an accuracy within the scientific implications of the word, and therefore is a confusing and misleading phrase in our fire and casualty fields. An actuarial determination, if it is in the area of collection, compilation or analysis of data, can be accurate. Such work is a scientific labor, but the formulation of rules for that work and for the interpretation of the data is a judgment process which carries it beyond the strict realm of a science. An actuarial determination in the field of ratemaking is a predictive estimate, the accuracy of which can only be judged by future developments. Such an estimative determination, unless accompanied by lace trimmings of probability ranges that are Ziegfeldianly fantastic to the layman, lies outside of the scope of pure science. And any such estimate in its final form of a specific rate is not upon analysis black-and-white in clarity or in uncontroversial characteristics; relatively it is a gray, a compromise.

Insurance statistics are only a part of the evidence in a rate determination or rate review, and cannot be fed into a hopper to produce a result mechanically. And the determination of what statistics are to be available for ratemaking, not being a uniquely scientific determination, becomes a delightfully arguable subject. Let us hope that this remains true in the future; that is, let us hope that dictation does not step into the picture and by fiat shut off competition and speculation in this field of thinking, for its fertility is far from being exhausted as yet.

FUNCTION OF STATISTICAL PLAN

There is still controversy as to whether the statistical plans to be promulgated by supervisory authorities under the rate regulatory laws should provide for the loss data necessary for rate review by those authorities. I have always answered that question in the affirmative, but realize that there are men whose opinions must command respect who believe otherwise. No one has yet given a satisfactory answer, however, to the question of what should be the purpose of the data so provided if they are not for rate review. Until that question is answered without coyness, we may proceed on the assumption that statistical plans that are acted upon by supervisory officials in accordance with the rate regulatory laws relating to such have for their purpose the production of data for rate review.

The questions that then arise are simple, but the answers complex indeed.

SHOULD STATISTICAL PLANS BE UNIFORM?

First, there is a two-headed question on universality: should such plans be uniform (a) for all states as respects one company and/or (a word now sanctioned by legislative action, I understand) (b) for all companies within a state?

Unless a plan is reasonably uniform for all states, in its application by any particular carrier, the administrative cost of the variations is going to outweigh the value of the information they provide. Some classification exceptions may be necessary: for example, no one is going to quarrel if Louisiana feels the need for "Marsh Buggies" and "Sugar Cane Haulers" automobile classifications and Vermont and Montana feel that such classifications are somewhat superfluous in their jurisdictions. These are in the nature of underwriting rather than actuarial considerations in any event. But if a carrier should have to maintain a complete separation of the medical payments premiums from the bodily injury premiums in one jurisdiction but not in others, or if a carrier must report calendar year experience in detail in one jurisdiction and policy year data in detail in others, such variations would not only work an administrative hardship in the case of that carrier, but would in addition constitute a violation of the spirit and probably of the letter of the regulatory laws effective in most states. The great danger lies in the fact that the safeguards against such developments are not present in every law. Thus far, reason and equity have prevailed generally in this respect, although not invariably, and not without many vigorous arguments and continuous watchfulness on the part of the carriers.

The other half of the question, uniformity among carriers in the same state, presents far greater difficulties. The theory behind the drafting of the model bill was clearly to permit different bases and procedures among carriers or groups of carriers in the development of statistics for rate review and rate determination. This theory is crossed (some would say double-crossed), however, by the very obtrusive fact that in a few states the rates for one or more lines are the same for all carriers or are determined from the total loss experience of all carriers, as a requirement by law or by ruling based upon interpretation of the law. In such states it is necessary, in theory at least, to have the statistics of all carriers comparable and combinable. Because of the conflict between this principle and the tolerance of independent operation written into laws in other states, the theory is imperfectly applied, and the forces working to keep its application imperfect are understandably strong, since their motivation is the preservation of the competition and of the encouragement of initiative and experimentation which are the foundation of our American economic system.

This perspective on the problem may seem to be pretentiously conceived to some of you. But it is one more illustration that many of our day-to-day skirmishes in the industry derive from basic principles that completely overshadow the details that are currently plaguing us, and we do not always recognize the source and the significance of this overshadowing, if indeed we recognize the overshadowing itself.

There is no need to depart here for a tangential side-trip on the merits of any requirement that all carriers combine their experience for ratemaking. I have taken a strongly adverse viewpoint on that subject before this Society and elsewhere on many occasions in the past, and we are faced with diverse laws and rulings in the matter. Any such requirement in any state disposes at once of the question of combinability of the experience of all carriers, in theory at least, though the actual solutions to date have reflected tolerant appraisals of the respective situations, to put it mildly.

WHAT SHOULD BE THE BASIS OF COMPILATION?

The next consideration is what the basis of compilation should be. Here again, there is no uniquely satisfactory answer. Let us look at automobile liability, for instance, the chief cause of concern to executives at the present time. Most carriers have for many years maintained detailed statistics upon a policy year basis, which was satisfactory as long as no marked trends in experience indications occurred. But after World War II when we entered a period of substantial trend, it became evident at an early date that the pre-war procedures were inadequate. A great deal of time was spent by the top technicians in the carriers studying other bases of reporting. I am sure that the complainants in the discussions of the past few years have no conception of the time or the talent that have been brought to bear on this problem. Those carriers writing six-month policies as a regular rule have an obvious advantage in closing the time gap between the latest experience and the date of review of that experience. It should also be emphasized that statistical information may be produced in a single carrier, no matter how large that carrier may be, more expeditiously by a margin of weeks or months than it may be collected from a group of carriers and compiled.

The general consensus of opinion now seems to be that the use of calendar year data on an earned basis in classification and territorial detail presents advantages that should be carefully surveyed. But before the advent of the new high-speed computing machinery, this solution was ruled out as impracticable if not virtually impossible because of the large amount of calculating necessary to turn out earned exposures and earned premiums in detail with sufficient accuracy. Higher speeds are now with us, in machinery being installed in insurance offices, and many carriers are now reporting data on a basis that permits the interim continuation of policy year experience but which also permits a transition to a more up-to-date and more responsive calendar year basis if that is ultimately deemed to be desirable. When full utilization of electronic developments comes, this transition that has already been undertaken may be a substantial part of the answer to executives' demand for more timely data. The reporting of losses has at the same time been modified by those carriers to permit a transition to an accident year basis of loss compilation.

This is a concrete illustration of attack upon the problems that arise.

What about principles? Again, there should be leeway for initiative and experimentation, not only among the independent carriers but among rating organizations as well. By and large this has been permitted under regulation. For example, the bases of maintaining burglary, glass and boiler and machinery loss data have been changed since regulation became effective and, as just noted, the ground work has been laid for a change in the automobile liability lines to an accident-calendar year basis. But there has been strong pressure in the direction of uniformity, I think primarily for the purpose of simplifying the work of the supervisory official. The degree of acquiescence to this pressure is probably the result of recognizing the practical situation in those states wherein uniformity can be enforced, and is not to be taken as an indication of the extent of agreement to the underlying idea.

WHAT DETAILS SHOULD BE REQUIRED?

Finally, what should be the details required every year as compared with those that may be furnished at less frequent intervals? This is an area wherein great latitude should be permitted, so long as any absolute requirements laid down by a supervisory official for one group of carriers are made mandatory for all carriers. I wish to be sure this last principle I have stated is not misunderstood. It does not mean that all statistical plans should be uniform. Rather, it means only that any requirements laid down by a supervisory official should be the same for all carriers, with latitude allowed to any carrier or group of carriers to maintain statistics beyond those minimum requirements in such detail as the carrier or group of carriers may desire. This principle underlies the New York Insurance Department's procedure for handling the problem. The New York Department has promulgated a statistical plan embodying minimum requirements, and any statistical plan that satisfies those minimum requirements is acceptable regardless of any additional detail it may provide.

What are the details in a statistical plan? They are three-fold in character: (a) items that are to be reported, such as exposures, premiums, losses, and number of claims, together with the rules relating to the determination of those items; (b) the classification detail; and (c) the territorial detail. The classification and territorial details are ordinarily set forth under a code number system.

While the basic items of information, from which the usual analytic ratios are constructed, are the exposures, the premiums, the losses and the number of losses, not all of these may be essential for the proper handling of any particular line. For example, the Burglary plans today do not provide for a reporting of the exposures, the reason being that the sub-division of classifications which would be necessary in order to utilize the exposures on a pure premium basis of rate determination would result in such small pigeonholes of experience as to produce more confusion than clarity in the interpretation. As another illustration, considerable discussion has been devoted to whether or not premiums need be reported in private passenger car experience since the actual premiums in detail are not customarily used in determination of rates; the usual approach is on a pure premium basis or through the calculation of loss ratios based upon premiums at existing rates which are in turn determined from exposures rather than from collected premiums. As a final illustration may be cited the overly abused and apparently little understood reporting of the number of claims. We in the rating organizations believe that the number of claims is an important adjunct in the analysis of the experience since it permits us to break down the pure premium into its component parts, the claim frequency and the average claim cost, for investigation and thus enables us to determine whether a trend is due to frequency, to severity, or to both. It has been used also by some organizations for many years as that basis of credibility determination which best combines simplicity, responsiveness and reliability. But it should be emphasized that there is nothing sacrosanct about this particular basis, and further that in some instances it is not the most desirable for one reason or another and is superseded by other bases in those same organizations that rely for the most part upon the number of claims for that purpose.

A definitive paper should be prepared discussing these principles, not by referring to a few isolated illustrations, but rather on an exhaustive basis. I do not feel that a presidential address is the proper vehicle for such a study, however, and have confined myself accordingly to a rather general discussion of principles without pretending to be complete in my coverage of details.

In the details by classification and by territory there have arisen two foci of dispute. The first of these involves not the coding but rather the reporting, and raises the question of whether experience need be reported by classification within territory, or alternatively by all classifications combined within each territory and by separate classifications on a statewide basis. This discussion has arisen in particular with respect to private passenger automobiles because of the fact that the rating organizations do call for experience by classification within territory so that they can calculate with unquestionable accuracy the premiums at present rates and the average present rates, which cannot be done under the other reporting procedure. It may be noted that the origin of this particular discussion is to be found in the difference of opinion which I have already mentioned exists as to whether the statistical plans promulgated by supervisory officials should or should not provide for information which will permit rate review. But the derivative question is not automatically determined by a resolution of that primary problem, for if all statistical data were to be called for in complete detail by classification within territory for all of our casualty lines, the carriers under their existing systems might be overwhelmed by the requirements. Some demarcation needs to be drawn if rationality is to prevail. It appears to many of us that the paramount importance of the private passenger automobile field in the insurance structure should dictate standards of accuracy and completeness of detail in the reporting of statistics in that area, and that such standards could be comprised to some extent in the establishment of requirements for other groups of classifications. For our purposes here, perhaps it is well to stop with directing attention to the fact that if the carrier is required to code by classification and by territory, the detail in question is available in the carrier's office regardless of the reporting requirements of the statistical agency.

The other focus of discussion in this connection has to do with the extent of the classification detail to be coded. There are undeniably many classifications in the various casualty lines which even over a period of years do not produce a volume of statistics large enough to be of use in rate determination. Rating organizations have, in general, insisted upon more detailed information in this regard than the independent company organizations. In those states in which a difference in detail has been permitted and where the rates are normally to be based upon the experience of all carriers, the result has been that the experience of all carriers has been used for classification relativity only, not for rate level determination. This is at present a compromise which is not unreasonable because the volume of business eliminated from rate level determination is not substantial, but if this proportion increases, the seriousness of the problem will increase accordingly.

In any event, any particular group of carriers must reserve the right under such circumstances to reduce their detail at any time to the lesser refinement permitted any other carrier or group of carriers. As a matter of equity, no double standard of approval can be permitted. Certainly the principle that detail may be curtailed for practical reasons, as reflected in certain plans today, is presumably supported by all carriers since to some extent it is embodied in all plans. And it is embodied in the action taken by the rating organizations a couple of years ago when they dropped certain details from their statistical plans with the understanding that such information would be collected at intervals of not more than ten years, either through reinstatement of the details in the plans for a period, or by special studies on a sampling or a survey basis. This method of lightening the details in the statistical plans is one which could well receive further exploration because even at the present time the plans are burdened with details which are not and should not be reviewed annually for rate modification. I think that only a small start has been made on this mode of attacking a very serious problem.

Under no circumstances should a statistical plan be considered as providing of necessity all of the information which will enter into the determination of rates. Reference has already been made to the impact of existing practices, to external economic factors, and to the judgment necessary in the interpretation of the insurance experience itself and in the amalgamation of all these elements. The filer, whether an independent company or a rating organization, may have made special studies not under the supervision of any state authority which will be a part of the filing and contribute to the supporting evidence.

The scope of the statistical plan should be restricted to the collection of that information about insured experience which will be recurrently subject to review. In any survey of results to date it becomes clear that the carriers in general have not been able to cope with the burden of statistical detail that has been laid upon them. Shortages in machines over most of the post-war period are partially responsible. Shortages in trained personnel, with the defense step-up in 1950 just when many companies were settling upon an even keel, must bear more of the blame. Executives cannot be absolved from shortsightedness in the matter of building up competent statistical departments. Even when all of these points have been properly weighed, however, the fact remains that the plans have been over-burdened with refinements which are not necessary on a year to year basis and which have slowed the company tabulations and reportings. A new perspective is needed which will highlight and expedite the vital information and streamline the handling of the fringes. And vigilance must be maintained against undue expansion of the plans under the pressure of supervisory authority or to accommodate some local situation that could better be handled by a special study.

FUTURE POSSIBILITIES

There is one more thought about refinements which I shall leave with you. It is possible that the greatest advantage which will be derived from the introduction of more efficient developments in the future in the electronics field will be the increase in the breadth of detail which may be recorded. The limitations of the 80-column punch card have had a definite effect upon the extent of the details reported under today's plans. Many carriers could not record additional details, such as age and sex of driver, without cutting an extra card on each risk and thus doubling the work in that respect, or without eliminating some other information which is now considered vital. We may have to modify our concepts in this respect in the future, and we should be aware of that possibility and alert to take advantage of it if it materializes.

ZONE DISCUSSIONS

Recently there has been considerable agitation among the technicians in the insurance departments with regard to details of the various statistical plans. I am sure that much of this agitation is due to lack of familiarity with the reasons for what the carriers have done in their development of the plans. The Zone 2 group of states met this problem in what seems to me a very cooperative and understanding manner, namely, by requesting technicians from the industry on an invitation basis to sit down with their group and spend the day in a free discussion of all the questions in the minds of the rating analysts. I commend this approach for the consideration of the other Zone groups that have interested themselves in the problem. This particular area, of supervisory effort, has been so far marked by emphasis upon regulation, rather than direction, and such discussions are far more than mere gestures in the direction of keeping it in that state of comparative bliss. If I seem to have overemphasized the dangers of the imposition of too rigid a mold by state authorities, it is only because I can so easily imagine myself in their shoes with full realization of how their problems could be simplified by such an approach. Their forbearance, tolerance and good faith under the circumstances indicate clearly their conscientiousness and integrity.

My remarks today have been undertaken with the idea of cutting through the trammeling details to lay bare the principles that have been involved in the development of the plans. It is very easy to become smothered in details without recognizing the framework they are clothing. I hope the result may be an improved understanding and a more determined cooperative effort to reach our common objective which is, in the final analysis, the production of significant and interpretable insurance experience.

COMPARISON OF WORKMEN'S COMPENSATION COSTS

BY

ROGER A. JOHNSON

INTRODUCTION

The high cost of Workmen's Compensation Insurance, particularly in the State of New York, is a continuing problem which is confronting not only employers and the insurance industry, but state officials as well.

In his Annual Report for 1952 to Governor Dewey and the Legislature, Commissioner Harold Keller of the New York State Department of Commerce, stated:

> "Higher costs of workmen's compensation insurance in New York State as compared with other leading industrial states continue to be one of the most serious problems facing the State in its efforts to attract new industry. The time has come for a courageous attack on the problem with a thoroughgoing examination of the factors causing higher costs in this State. This will mean a special investigation, constituted officially and expressly for this purpose . . ."

In her Annual Report for 1952 to Governor Dewey, Miss Mary Donlon, Chairman of the Workmen's Compensation Board, stated:

> "The high cost of workmen's compensation insurance, a problem to which we directed attention in our Annual Report for 1951, again is in the forefront of discussion among both employers and workers in every part of the State. Employers cite high manual rates for workmen's compensation insurance. Workers point to the decline in indemnity benefits relative to wages, for the loss of which workmen's compensation is intended to compensate them. Since the problem is of obvious concern to all the people of the State and to several departments and agencies of State government, as well as the local governments, we recommended to the Joint Legislative Committee on Industrial and Labor Conditions, at its recent public hearing in the Assembly Chamber, that a study be made of the factors affecting the cost of workmen's compensation insurance in this State."

The purpose of this paper is not primarily to analyze the reasons why the cost of compensation insurance in New York is so much higher than in other large industrial states, but rather to discuss and justify a series of tables of Comparative Costs which were prepared by the writer and which have received a certain amount of publicity over the past few years.

THE PROBLEM

In an effort to produce a reasonably accurate measure of the differences in cost between states, various criteria were considered, but only one appeared to meet all of the necessary requirements. For example, a comparison of the ratios of earned premiums to payrolls, or the average collected rates, would be meaningless because of the wide variation in the distribution of hazardous industries between states. In some states there are many hazardous industries and in others practically none at all, which would affect the average collected rate far more than the basic variation in costs for which a measurement is being sought.

The criterion finally selected was the average manual rate, determined, not from all classifications but from 46 major classifications, each of which has a considerable exposure in each of the states involved in the study. If all classifications had been used, those classifications which are important in only a few states would not be accurately reflected in the average manual rates. It is interesting to note that the New York Insurance Department, in making a careful analysis of the July 1, 1951 exhibit, considered the possibility of using an additional 20 or 25 classes. Their test showed that the inclusion of these additional classes would actually widen the gap between New York and other states, so that the indicated variation in costs would have been even greater.

In selecting these 46 major classifications, later reduced to 45 by the elimination of the farming classification, it was necessary to use 13 which are in the category of New York Special classifications. In a majority of these, the only difference between the New York Special and the countrywide classification is a minor variation in the class wording, which affects neither the scope nor the hazard of the classification, so that they are comparable for all intents and purposes. In other cases, one or more New York Special classifications have been combined to equal the scope of a single countrywide classification. In one case, two countrywide classifications were combined to equal a single New York special.

Actually, there is nothing particularly actuarial in the determination of the average manual rates. Any statistical clerk, having available the manual rates for the states involved, could perform the necessary calculations.

THE TABLES

The average manual rate for each state was determined by using the latest available New York payroll distribution for the 45 classifications. Tests were made which showed that it makes little difference as to which payroll distribution is used — as long as the *same* payroll distribution is used for all states, the results will bear a consistent relativity. If, on the other hand, the payroll distribution for each state is used in determining its own average rate, the answer would be affected more by the payroll distribution than by the basic variation in costs which is to be measured.

This study was first made on July 15, 1948 and was repeated for the manual rates in effect on February 15, 1950; July 1, 1951; and July 1, 1952; and showed the following average manual rates:

	7/15/48	2/15/50	7/1/51	7/1/52
New York	$1.312	$1.280	$1.500	$1.505
Massachusetts	.785	.971	.990	1.103
New Jersey	.796	.639	.719	.823
Texas	.784	.730	.752	.778
California	..688	.697	.695	.758
Wisconsin	.706	.644	.653	.741
Connecticut	.714	.703	.660	.720
Missouri	.628	.587	.588	.624
Maryland	.571	.532	.484	.539
Illinois	.492	.575	.489	.482
Michigan	.512	.521	.514	.444
Iowa	.460	.479	.460	.435
Indiana*	——	.462	.454	.433
Virginia	.419	.380	.334	.390
Alabama	.333	.338	.324	.356
Pennsylvania	.330	.353	.321	.320

*not included in 7/15/48 study

Because of the fact that Pennsylvania has a broader classification system of its own, consisting of only about 200 classes, the average rates for Pennsylvania may not be truly comparable with New York and the other states. In each case, however, the best possible assignment was made, so that the result should have some significance.

PUBLICITY

These figures were first published by the Insurance Department of the United States Chamber of Commerce in their Supplement to the 1948 Analysis of Provisions of Workmen's Compensation Laws and Discussion of Coverages.

More recently, they have been published by Associated Industries of New York State, Inc.

In a series of articles by George Horne which appeared in the *New York Times* on September 10, 11 and 12, 1951, the July 1, 1951 figures were quoted. Unfortunately, the author of those articles did not see fit to confer with the producer of the tables and a number of serious misstatements were made in connection with the data and their interpretation.

THE PURPOSE OF THE TABLES

The purpose in compiling these average rates, as stated above, has been to make a comparison of workmen's compensation *costs* in the various states. The use of the average manual rates has been attacked as not being truly representative of relative costs. Admittedly, for an individual risk, particularly one large enough to be either self-rated or self-insured, the manual rate means very little. Most large risks are subject to experience rating and premium discount, and risks insured by mutual companies receive dividends, but since these elements affect the premium in each state in approximately the same manner, the average manual rate, while not an absolute measure, is deemed to be a valid index of relative cost, state by state.

Furthermore, while the method of making manual rates may vary slightly from state to state to reflect minor differences in state requirements, such as taxes, etc., the basic ratemaking procedure is the same in all of the states, and minor discrepancies or differences cannot affect the overall picture.

In analyzing workmen's compensation costs, there are various items which account for the marked differences between states. Primarily, benefit provisions in the various compensation laws vary widely and account for a major portion of the difference. The inclusion, in some states, of the cost of administering the Workmen's Compensation Law in the manual rates may widen the gap slightly. And finally, liberality of administration of the Workmen's Compensation Law may increase costs far beyond any actual comparison of the benefits prescribed in the Law.

NATIONAL COUNCIL BENEFIT INDEX

The National Council on Compensation Insurance periodically publishes a Comparative Benefit Table which shows, for 53 states and territories, a benefit index which has been built up as a cumulation of the various periodic law amendments. Admittedly, this table has many shortcomings, and refers only to indemnity losses. No similar data are available for medical benefits.

Because of its shortcomings, the following table is not quoted with any idea of using it as an adjustment in the average manual rates, but merely because it is interesting to see the figures side by side:

	National Council Benefit Index July 15, 1952	*Average Manual Rate Index July 1, 1952*
New York	1.000	1.000
Massachusetts	1.129	.733
New Jersey	.940	.547
Texas	.743	.517
California	.867	.504
Wisconsin	1.234	.492
Connecticut	.872	.478
Missouri	.905	.415
Maryland	.904	.358
Illinois	1.021	.320
Michigan	.928	.295
Iowa	.849	.289
Indiana	.861	.288
Virginia	.837	.259
Alabama	.691	.237
Pennsylvania	.830	.213

CRITICISMS

Two further criticisms have been leveled at the use of average manual rates as a means of comparing costs: (1) that the manual rates in effect on a given day do not reflect the same experience period, and (2) that some manual rates include provision for the expenses of administering the Workmen's Compensation Law, while some of them do not, such expense being subsidized by the state. Both of these statements are true, but it can easily be shown that they have only a very slight effect on the overall picture.

(1) The New York rates in effect on July 1, 1952 were those which became effective on January 1, 1952, for which the rate level was based on policy year 1949. For the other states, whose rates became effective at various times from September 1, 1950 to July 1, 1952, the rate level, depending on the revision date, was based on the two latest available policy years, either 1947-48 or 1948-49. In both New York and the states under National Council jurisdiction, the current ratemaking program further provides for the application of a Rate Level Adjustment Factor based on *later* calendar year experience. For the New York rates in effect on July 1, 1952, the Rate Level Adjustment Factor was based on the calendar year experience from July 1, 1950 to June 30, 1951, which had been obtained by a special call. For the other states, depending on its availability on the date of the revision, calendar experience ending either on December 31, 1950 or on December 31, 1951 was used. In at least six states, the rates more closely reflected current experience than did the New York rates.

In developing the Table of Comparative Costs, manual rates in effect on July 1, 1952 were used regardless of the experience period to which they were keyed. Whether they were keyed to five-year old experience or were projected to a point five years in the future, they do represent rates paid by employers in July of 1952. Unless there were a significant trend in one direction or the other, differences in the experience period could hardly be considered as a factor in cost differentials between states.

(2) In New York, the expenses of the Workmen's Compensation Board relating to the administration of the Workmen's Compensation Law are included in the manual rates. The January 1, 1952 manual rates were higher by about 3½% by the inclusion of this item. Of the 15 other states shown in the Table, specific provision for administration expenses is made in three of them, as follows:

New Jersey — Workmen's Compensation Tax of 0.25%

Texas — 0.3% of gross Workmen's Compensation premiums

Maryland — a varying assessment per $100 of payroll. (The latest available figure is $.02 per $100 of payroll.)

Similar expenses in other states are subsidized by the state, but the amounts in those states are relatively unimportant. The following expense figures were furnished to the writer by the Industrial Commission in each of the states involved:

	Calendar Year 1951 Earned Premium	*Expense of Administering W. C. Law*	*Period Reported*	*Approximate Ratio of Expense to Premium*
Alabama	$ 4,746,875	$ 10,726	10/1/51-52	.0023
California	115,239,572	1,091,612	50-51 fiscal	.0095
Connecticut	19,468,163	129,308	7/1/51-52	.0066
Indiana	17,586,371	109,292	7/1/51-52	.0062
Iowa	8,903,419	abt. 30,000	———	.0034
Massachusetts	51,457,473	610,515	7/1/51-52	.0119
Michigan	37,152,367	244,461	7/1/51-52	.0066
Missouri	18,987,208	286,995	7/1/51-52	.0151
Pennsylvania	29,358,574	772,554	6/1/50-51	.0263
Virginia	8,582,702	201,364	7/1/51-52	.0235
Wisconsin	23,723,392	190,318	7/1/51-52	.0080
Total	$335,206,116	$3,677,145		.0110

Presumably, if these costs were assessed against the carriers, some portion would be paid by self-insurers. The ratio to premium in each state would therefore be less than is indicated above.

One can readily see that the inclusion of an adjustment in the average manual rates of these states to reflect this item would have no appreciable effect on the overall picture of relative costs.

CONCLUSION

As stated above, the actual preparation of these tables is more of a statistical proposition than an actuarial one. On the other hand, it is felt that the selection of appropriate classifications and the method of determining the weighted average rates require the use of some actuarial science.

It is to be hoped that, regardless of the reasons for the wide variation in costs between states, these tables will serve those who intend to investigate workmen's compensation costs as an accurate measure of the problem involved, and give them a possible starting point for their investigations.

The complete July 1, 1952 table including classifications and manual rates by state follows:

DISCUSSIONS OF PAPERS READ AT THE NOVEMBER 1952 MEETING

THE EXPENSE STUDY BY SIZE OF RISK

M. H. McCONNELL

Volume XXXIX, Part II, Page 19

WRITTEN DISCUSSION BY A. N. MATTHEWS

Mr. McConnell has done the Casualty Insurance industry a distinct service by presenting the details of the size of risk study and in causing the results thereof to be presented in our *Proceedings*. Henceforth, any one having occasion to refer to the 1950 Size of Risk Study, be he an Insurance Commissioner, Company executive or a student preparing for our examinations, will refer to Mr. McConnell's paper in Volume XXXIX.

This is not the first study of Workmen's Compensation expenses by size of risk. At least one large company analyzed its expenses for this line in 1929 and 1930. This was followed in 1934 by a study that was made by the Pennsylvania Compensation Rating and Inspection Bureau to determine the percentage of cost that may be considered to follow the number of policies and the percentage that follows premium. A distinct gradation of administration expense by size of risk was indicated. This study is described in a paper entitled "Compensation Expenses per Policy" by Harmon T. Barber found in Volume XXI of the *Proceedings*.

In 1940, a number of companies, all members of the National Bureau, prepared a study of their Workmen's Compensation administration expenses for calendar year 1939 by size of risk. The results of this study were compiled by the Bureau. The indicated gradation of expenses was used to substantiate the premium discounts and expense provisions contained in the 1943 Rating Program. These earlier studies were limited to the Workmen's Compensation administration expenses of stock companies. The 1950 studies were the first to include the other acquisition and inspection items, or to embrace the Liability and Property damage lines. Also, the 1950 study included for the first time the expenses of mutual companies.

Mr. McConnell has given a detailed outline of the method used by his company to distribute home office administration expenses (page 27). It might be helpful to students of the problem to show a similar analysis of other acquisition expenses. The plan followed by the Travelers is as follows:

Operation	*Basis of Allocation*
Managers' Salaries and Expenses	Premium
Cashiers' Department Salaries and Expenses	
Administration Detail	Time Study
Clerical Detail	Time Study
Premium Reporting—Administration	Item Count
Premium Reporting—Clerical	Item Count
Branch Office Agents' Expense	Premium
Agents' Allowances	Premium
Policywriting Salaries and Rent	Time Study
Other Home Office Salaries and Rent	Overhead on Managers and Cashiers
Advertising	Premium
Printed Matter and Office Supplies	Overhead on Managers and Cashiers

The time study used as the basis of allocating administration and clerical detail under Cashiers' Department Salaries and Expenses was conducted in nine representative branch offices. In selecting these offices consideration was given to size, geographical location, distribution by line of insurance (Ohio and Massachusetts offices were not used), availability of personnel to supervise the study and stability of operations within the branch during the test period.

Administrative and clerical expenses in connection with premium reporting were distributed on a per item basis, using a study of the average number of premium items per policy by size of risk made in the Home Office Casualty Accounting Division.

Policywriting salaries and rents were distributed using as a basis the time study made in the Home Office Policywriting Division, since the expenses are for similar operations.

The final results produced for the Travelers Companies are similar to those shown for all stock companies combined as will be seen from the following comparison for the Workmen's Compensation line:

Calendar Year 1949 — Workmen's Compensation
Other Acquisition Expenses Paid
By Size of Risk

Premium Size	*Travelers*	*13 Stock Companies Combined*
Under $50	18.5%	22.5%
50-99	12.4	12.4
100-499	4.4	5.2
500-999	3.4	3.6
1,000-4,999	2.5	2.8
5,000-9,999	3.4	2.9
10,000-24,999	2.3	2.6
25,000-99,999	2.1	2.8
100,000 & Over	1.7	2.1
Average	3.2	4.1

In the foregoing exhibit the percentages show a gradation similar to that for home office administration and justify the inclusion of other acquisition in the Compensation graduated expense procedure.

COMPARISON OF WORKMEN'S COMPENSATION COSTS AS REFLECTED BY CURRENT MANUAL RATES

	Classification Code Number (1) New York	Classification Code Number (1) Other States	Proportion of Total N. Y. Payroll Pol. Yr. 1947	(2) MANUAL RATES IN EFFECT JULY 1, 1952 N. Y.	Mass.	N. J.	MANUAL RATES IN EFFECT JULY 1, 1952 (2) Texas	Calif.	Wisc.	Conn.	Mo.	Md.	Ill.	Mich.	Iowa	Ind.	Va.	Ala.	Pa.
AVERAGE RATE (3)				$1.505	$1.103	$ .823	$.778	$.758	$.741	$.720	$.624	$.539	$.482	$.444	$.435	$.433	$.390	$.356	$.320
PERCENT OF N. Y.				100.0%	73.3%	54.7%	51.7%	50.4%	49.2%	47.8%	41.5%	35.8%	32.0%	29.5%	28.9%	28.8%	25.9%	23.7%	21.3%
Bakeries	2003	2003	.87%	$2.75	$1.61	$1.12	$1.11	$1.48	$ .90	$1.07	$1.01	$ .95	$ .83	$ .73	$ .52	$ .63	$ .61	$ .62	$ .55
Creameries	2070	2070	.58	3.83	2.32	1.70	3.35	1.90	1.69	1.59	1.27	1.17	.90	.83	.94	.87	.89	.85	.75
Breweries	2121	2121	.34	5.43	3.62	2.70	1.86	1.86	1.28	2.84	1.24	1.60	1.55	1.00	1.07	1.28	1.13	1.04	1.05
Clothing Mfg.	2501-22-53	2501	7.46	.78	.62	.38	.47	.45	.39	.30	.37	.28	.22	.24	.27	.20	.21	.23	.16
Laundries	2580-81-82	2585	.86	1.89	1.64	.93	1.07	1.46	1.02	.93	.97	.70	.74	.70	.63	.76	.49	.64	.44
Logging & Lumbering	2702	2702	.04	20.76	11.48	8.40	9.75	9.85	14.68	9.43	7.05	7.37	5.50	15.39	6.06	7.00	3.74	3.01	5.30
Furniture Mfg.—wood—N.O.C.	2883	2883	.26	3.51	2.11	2.35	2.21	2.98	1.84	2.02	2.64	1.79	1.16	.90	1.15	.96	1.01	.99	.85
Sheet Metal Work—shop only	3066-67	3066	.21	4.94*	2.69	2.30	2.45	2.81	1.41	2.04	1.97	1.75	1.48	1.05	1.22	1.51	1.10	1.15	1.10
Foundries—iron—N.O.C.	3081	3081	.15	6.32	4.71	2.95	2.29	3.40	2.33	3.12	3.45	2.95	1.86	3.68	1.73	1.57	1.86	1.75	1.10
Foundries—steel castings	3082	3082	.05	5.62	3.61	2.35	3.19	2.49	2.54	3.21	3.37	2.27	1.88	4.26	1.81	2.09	1.39	1.75	1.35
Foundries—non-ferrous metals	3085	3085	.04	4.73	2.27	2.60	2.42	2.61	2.33	2.62	2.37	2.09	1.76	3.50	1.35	1.65	1.32	1.74	.90
Hardware Mfg.—N.O.C.	3146	3146	.15	4.26	2.95	1.44	1.57	1.86	1.32	1.30	1.48	1.08	1.04	.77	1.01	.79	.80	.77	.75
Electrical Apparatus Mfg.—N.O.C.	3179	3179	.30	2.33	2.27	1.32	1.51	1.21	.71	.83	.51	.80	.95	.55	.61	.83	.57	.57	.55
Machine Shops—N.O.C.	3632	3632	.54	3.28	1.35	1.65	2.44	1.94	1.26	1.22	1.31	.98	.91	.95	.82	.61	.91	1.31	.75
Millwright Work—N.O.C.	3724	3724	.13	4.13	2.91	2.50	2.59	2.79	2.17	2.62	2.25	1.31	1.93	1.31	1.39	1.46	1.21	1.04	1.00
Paper Mfg.	4239	4239	.15	6.16	2.25	2.50	1.86	1.98	1.91	2.27	1.77	2.04	1.62	1.90	1.55	1.56	1.94	1.14	.95
Printing	4299	4299	1.22	1.38	1.03	.67	.64	.71	.67	.53	.54	.54	.46	.33	.36	.39	.35	.34	.33
Newspaper Publishing	4304	4304	.61	1.38	.81	.43	.64	.71	.71	.53	.54	.54	.46	.33	.36	.39	.35	.34	.33
Masonry—N.O.C.	5022	5022	.65	6.71	5.70	3.50	3.62	2.18	2.06	3.09	1.78	1.58	1.58	1.38	1.15	.97	.73	.73	1.05
Plumbing	5183	5183	.82	3.91	2.15	2.10	1.71	1.70	2.15	1.57	1.32	1.50	1.27	1.17	1.14	1.00	.81	.85	.85
Electrical Wiring—in bldg.	5190	5190	.47	3.29	2.04	1.85	1.69	1.77	1.43	1.80	1.16	1.53	1.10	1.21	1.03	1.10	.96	1.09	.90
Concrete Construction—N.O.C.	5213	5213-15*	.60	7.08	6.81	4.12	3.62	2.99	3.48	5.00	3.79	2.72	2.38	1.90	1.88	1.45	2.13	1.85	1.50
Carpentry—N.O.C.	5403	5403	.90	6.50	8.36	4.00	3.62	4.20	4.57	5.24	2.69	2.71	3.52	2.34	2.39	2.49	2.39	1.88	1.40
Painting, Decorating or Paper Hanging	5474	5474	.40	7.04	4.39*	4.60	1.65	3.26	2.98	3.00	2.30	2.50	1.95	1.78	1.39	1.86	1.25	1.18	2.00
Street or Road Const., Paving, etc.	5506	5506	.23	6.35	5.05	2.85	5.00	3.90	4.01	2.35	3.58	2.82	2.43	2.44	2.30	2.53	2.02	1.94	2.10
Truckmen	7219	7219	.94	5.73*	4.03	3.80	4.72	3.00	3.20	3.62	2.18*	2.01	1.81	1.49*	1.43	1.64	1.63	2.00	1.35
Chauffeurs & their Helpers	7380	7380	.73	2.61	1.70	1.70	1.20	1.01	1.08	.94	.81	.65	.69	.44	.57	.70	.56	.58	—
Electric Light & Power Cos.	7539	7539	.37	3.22	2.03	1.46	2.20	1.99	2.56	1.45	3.56	1.43	2.14	1.53	1.78	1.53	1.11	1.09	1.60
Grocery Stores—retail	8006	8006	.36	2.14	1.27	1.20	1.02	.80	.99	.79	.65	.61	.41	.40	.44	.44	.51	.39	.50
Clothing Stores—retail	8008	8008	1.54	.82	.59	.51	.34	.37	.28	.30	.32	.32	.21	.24	.18	.22	.17	.15	.18
Store Risks—retail—N.O.C.	8017	8017	1.22	.95	.83	.62	.47	.50	.41	.36	.48	.31	.33	.27	.35	.32	.22	.18	.22
Store Risks—wholesale	8018	8018	.79	3.15	1.78	1.34	1.28	1.26	1.36	1.60	.96	.91	.78	.80	.75	.91	.69	.68	.33
Department Stores	8039	8039	1.30	.84	.80	.43	.47	.42	.49	.38	.33	.31	.30	.26	.24	.22	.25	.22	.22
Lumber Yards	8232	8232	.36	5.40	4.41	3.10	2.02	2.55	2.72	2.28	2.07	1.77	1.70	1.58	1.46	1.54	1.38	.96	1.55
Coal Merchants	8233	8233	.12	7.58	6.02	3.50	3.01	3.73	4.36	3.17	2.38	2.16	2.53	2.85	2.07	1.69	3.06	1.29	1.30
Gen. Mdse. Storage Warehouses	8292	8292	.06	6.47	4.88	4.70	2.77	3.32	2.59	2.30	2.04	1.73	2.07	1.16	1.15	1.49	1.32	.98	1.20
Auto. Accessories Service Stations	8387	8387	.30	2.89	2.09	1.55	1.44	1.44	1.62	1.45	1.12	1.07	.97	.73	.83	.75	.69	.70	.65
Auto. Garages—All other empl.	8391	8391	.94	2.89	1.59	1.65	1.58	1.08	1.62	1.45	1.12	1.07	.97	.75	.83	.75	.71	.70	.65
Salesmen, Collectors or Messengers	8742	8742	7.21	.34	.25	.21	.38	.22	.36	.19	.17	.21	.14	.18	.20	.20	.18	.15	.11
Clerical Office Employees	8810	8810	21.99	.16	.11	.09	.10	.09	.07	.09	.09	.08	.06	.05	.08	.05	.07	.06	.04
Hospitals—Prof. employees	8833	8833	1.25	1.32	.62	1.02	.25	1.28	.45	.48	.24	.24	.21	.25	.20	.20	.26	.15	.32
Buildings—oper. by owner or lessee	9026	9015	1.82	3.48*	2.86	2.10	1.11	1.65	1.87	1.35	2.02	1.35	.99	1.00	.98	1.53	.71	.47	.65
Hospitals—all other employees	9040	9040	.49	3.70	2.03	1.02	.86	1.28	1.10	.84	.80	.81	.90	.75	.76	.66	.64	.39	.32
Hotels	9052	9052	1.22	2.48	1.71	1.36	1.20	1.30	1.23	1.24	1.03	.80	.76	.80	.66	.80	.56	.45	.12
Restaurants	9079	9079	2.94	2.29	1.42	1.30	.89	.89	1.01	.94	.83	.71	.63	.66	.63	.48	.49	.36	.48
TOTAL			63.98																

Notes: (1) Code Number generally used in National Council States. Pennsylvania has its own code number system, but comparable classifications have been used.

(2) Including occupational disease elements where such elements are mandatory or are included in the printed manual rate.

(3) Average rates determined using New York Payrolls for Policy Year 1949 as weights.

*	New York	#3066	weighted average of rates for 3066-67.
	New York	7219	weighted average of rates for 7197 and 7219 (formerly 7219-24-25-26-27).
	New York	9026	same rate for 9028 and 9029 (formerly 9021 and 9022).
	Massachusetts	5474	weighted average of 5461 and 5490.
	Missouri and Michigan	7219	weighted average of 7228 and 7229.
	Pennsylvania	7380	included in governing classification.
	All States	5213-15	where 5215 exists, rate shown is a weighted average of 5213 and 5215.

THE EXPENSE STUDY BY SIZE OF RISK

M. H. McCONNELL

WRITTEN DISCUSSION BY M. S. HUGHEY

Volume XXXIX, Part II, Page 19

The expense study by size of risk undertaken by 13 stock and 5 mutual companies was one of the most significant and large-scale investigations into expenses undertaken in recent years. As such it deserves the most careful review and analysis by those concerned with the measurement of expense elements on a more scientific basis. A comprehensive outline of the historical background, methods used, and results such as Mr. McConnell has prepared is extremenly valuable for study. The complete documentation with associated reports provides a convenient reference for considering this entire question and contributes importantly to the value of the presentation.

In his paper, Mr. McConnell has done an excellent job of presenting the highlights of the various phases of the job through quotations from committee reports, while maintaining continuity through the vast mass of detail which the study encompassed. The section outlining the methods used by the stock companies in general and Mr. McConnell's company in particular is especially worthwhile as a general guide to the procedure to be followed in a study of this kind. As Mr. McConnell pointed out in conclusion, this large-scale demonstration of the possibilities of using cost accounting methods and techniques may have highly important future significance.

In reviewing the outline and visualizing the steps required in such a study, several important points stand out.

(1) Such a study requires a tremendous amount of time. A detailed analysis is no small undertaking and for a substantial size company, several man-years of work are required.

(2) It is not enough to allocate the expenses of large segments of the operations on single bases, but the many individual operations within each segment must be separately evaluated. Anyone who has tried to review the handling procedure of a Compensation policy is aware of the large number of detailed operations which are involved.

(3) Depending on how particular jobs are performed in different companies, there may be a wide range of expense distributions on those jobs. Take, for example, a premium collection operation. A company that uses a punch card collection file and system will have a different distribution of expense by size than a company that uses a strictly manual system.

(4) Individual operations will vary widely in the distribution

of expense by size, even though the approach to making the distribution is quite similar. Note, for example, the contrast in the distribution of expense for "accounts collection" and "central files" as reported by Mr. McConnell, and yet both operations were allocated on an "item count" basis. Similarly, compare the wide contrast reported for "underwriting" and "history," where a "time study" was used. In the case of time study we expect a variation, but it is evident that no single base would provide an accurate allocation of the expenses of each of the many operations.

(5) It is significant that those companies operating on the same general plan developed generally uniform results, in spite of different methods used in allocating specific items and different individual operation handling procedures. This suggests that the results achieved are reasonably credible as a measure of the expense elements on Compensation policies, as they existed at the time of the study.

Mr. McConnell has rightly called attention to the existence of the small risk problem. The much higher expense factor for Compensation risks under $100 was made clear in the study. Mr. McConnell has reiterated the need for a new approach on risks of this type, a point which was brought out forcibly in the National Council's report of May 16, 1951 and reflected in the N.A.I.C. Sub-committee comments.

Of particular interest in this small risk problem are the expense results reported by both the stock and mutual companies on small Auto policies. Quite obviously, the companies have found ways of handling these policies which are far less expensive than the handling given small Compensation policies. This suggests that if enough thought and effort could be devoted to the problem, the expense on these small Compensation policies can also be reduced. It is probably reasonable to assume that after reviewing the results of this study, every insurance executive responsible for spending the individual company's money to the best advantage has taken a careful look at the operations being performed on small Compensation policies to see what economies could be accomplished.

Some improvement undoubtedly can be effected on an individual company basis. However, a problem is created by the fact that the Compensation handling has been developed out of the requirements of the larger risks. This resulted in the Compensation handling being largely dictated by state regulatory requirements, rating bureau requirements and company procedural practices on those larger risks. This situation has seriously deterred progress in simplifying the handling of smaller policies. Badly needed, obviously, is a complete new approach on these risks which will open the way to solving this problem.

The suggestions listed by Mr. McConnell all represent major change of the type that must be carefully considered and evaluated. Most importantly, the Industry must be willing to depart from long established practices and be willing to try what may at first appear to be startling deviations. For the benefit of the insurance buying public, some of the refinements of rate making and regulatory control must give way to economical handling procedures.

NOTES ON THE EFFECT OF WAGE CHANGES ON WORKMEN'S COMPENSATION PREMIUMS AND LOSSES

EDWARD S. ALLEN

Volume XXXIX, Page 59

WRITTEN DISCUSSION BY A. Z. SKELDING

I think it might be well to state at the outset, that after considerable experience, of many years, having to do with compensation rate-making, I am firmly convinced that the injection of a so-called wage trend factor in the compensation rate structure would be a tragic mistake.

With this preamble, it will be readily recognized that I am not going to take any really serious issue with the conclusions reached by Mr. Allen. If I were to take such issue, it would be along the lines that, to my way of thinking, Mr. Allen has, by his investigation, clearly demonstrated the inadequacies of a wage trend factor and, hence, I would liked to have seen conclusion number 11 to the effect that a wage trend factor in the compensation rate structure is but a snare and delusion — albeit an appealing one when the effect is for a reduction of rate level that would turn out to be anathema, in certain quarters, I am sure, when, if ever, the effect on rate levels should be reversed.

Mr. Allen has noted that "for many years there has been extended discussion concerning the reflection of the effect of wage changes in the determination of workmen's compensation rate levels." It should be noted also that there has been far more than just academic discussion of this item and quite some years ago, the compensation rate structure actually included definite and specific provision for such factor.

In this connection, I would like to quote from a report by the late Clarence W. Hobbs presented at the September 1925 session of the National Association of Insurance Commissioners. After stating that the workmen's compensation loss experience had reached alarming proportions Mr. Hobbs said, "The theory was advanced that changes in loss cost not attributable to changes in law benefits were due to changes in wage level, and in preparing for a new revision the Council tentatively adopted the program of combining experience by the use of factors expressing difference in law benefits and differences in wage levels." The proof of the pudding is in the eating. As to the results of that eating, Mr. Hobbs stated, "The theory on which the pure premiums were calculated developed, however, *in practice* notable defects. To begin with the conversion of experience in accordance with wage levels was a constant source of trouble. The average wage proved difficult of computation, especially for the latest year, and it became perfectly obvious that the average wage level was at times very radically different from the average wage level in single classifications. Moreover, it became apparent that law changes and wage level changes did not account for *all* of the variations in loss cost." Mr. Hobbs went on to comment that this procedure produced rate levels that were so low that it eventually became necessary to modify those rate levels through the use of estimates. This, in itself, resulted in chaos and gave rise to constant differences of opinion, not only between the National Council and supervisory authorities, but also among the various Regional Committees of the Council.

Mr. Hobbs then notes that this matter was brought to a head in connection with rate revisions in Massachusetts, New York and Virginia at which time it was recommended that the troublesome wage factor be eliminated.

Now, I think it must be perfectly obvious as to why a wage trend factor failed in the past and will fail in the future. It is so easy to fall for the apparently logical reasoning: If wages are increasing, premiums will increase, losses will increase, but, due to limits, losses will not increase as fast as premiums. Hence, with all other factors remaining equal, rates should be reduced.

The trouble is, all other factors do not remain equal, and hence it is the height of folly to blithely proceed on a path of ignoring those other factors, some of which may work in the same direction as wage changes and some of which may work in the opposite direction.

It is extremely difficult to understand the appeal of wage trend factors in the face of the obvious fact that wages is only one of the elements, beyond the normal experience period, which will affect compensation costs and, under certain extreme conditions, may be far outweighed by other elements.

You will recall the statements of Mr. Hobbs that some years back wage factors were advanced as a solution to the then adverse loss ratios but, in actual practice, it became apparent that the wage trend factor was defective in that it did not measure all of the variations in loss cost and, hence, for this reason as well as others the troublesome wage factor was abandoned.

Now, to my mind, a tremendously important fact is that the wage factor was found wanting when loss ratios were high. When loss ratios are running favorably and the introduction of a wage factor would tend to produce lower rate levels than would result in the absence of such factor and if loss ratios continue to run favorably in spite of such factor, nobody is too much concerned and probably everybody, except perhaps, a few self-serving propagandists, is happy. I am far more concerned about corrective results when experience is running adversely. Supervisory authorities whose primary responsibility above all other considerations, in my opinion, is to insure the adequacy of rates should be of the same opinion.

It is at the very time when loss ratios are running adversely, perhaps due to unfavorable economic conditions, that these factors, which are not fully reflected by mere statistical wage trend data, become of supreme importance. That is what caused the previous abandonment of the wage factor by the National Council.

I do not care how well it can be demonstrated on paper that, in times of increasing wages, a wage factor is justified. A factor which has the very obvious fault of ignoring, in times of adverse loss ratios, all of the elements which affect compensation costs, is subversive, as far as I am concerned. I have no desire to get started down a one way street and, for more reasons than I have explicitly set forth, I fear a wage factor would be a one way street in the wrong direction.

Even in times of good loss ratios and increasing wages, the wage trend factor is defective. I have selected, at random, data for four states for which we have recently tabulated the experience for rate revision purposes. Covering about a five year spread, the increases, excluding increases due to law amendments, are as follows:

	State I	*State II*	*State III*	*State IV*
Average Indemnity Cost	20%	30%	40%	45%
Average Medical Cost	25	50	40	50
Wages	15	25	30	25

To my mind, these figures clearly demonstrate that for these states, and I am sure the situation is similar for most other states, that the upward trend in costs has appreciably exceeded the upward trend of wage changes. Hence, the inequity of any factor which ignores these other elements must be readily apparent.

To revert, for a moment, to the abandonment of the wage trend factor by the National Council quite a few years ago, it might be argued that this is rather ancient history and we should take another whirl at it. Perhaps conditions have changed. Therefore, I refer to the state of Texas.

In 1943, the Texas Board injected a wage trend factor in the Texas rate structure. This action of the Board was viewed by the carriers with what may be termed a jaundiced eye accompanied by a feeling of weakness in the pit of the stomach. You see, it was feared that this action was eventually going to hit hard in the pocketbook or wherever it is insurance companies keep their spare funds, if any. It is only fair to state that this feeling was not shared by one of the largest writers of compensation insurance in that state. In fact, that carrier had long been an ardent advocate of a wage trend factor and, for a number of years had carried on, singlehanded, a crusade for the adoption of such factor, using the same faulty reasoning, in my opinion, that is now being used in support of that program. For the next few years Texas loss ratios continued mostly in the black. About 3½ years ago, the picture changed and there were indications that there were a few ripples on the hitherto calm surface — due, of course, to the fact that recognizing only wage trends and ignoring other cost elements, was beginning to catch up with the procession. The situation further deteriorated with the passage of time and then came the deluge.

To make a long story less long, the Board in November of 1952 which, by the way represented two rate level increases in less than a year (and law amendments were not involved) announced abandonment of the wage factor. Thus, History repeated itself.

In promulgating the December 1952 Texas revision the Board stated, in part,

> "Continued studies of statistical data and attendent information which has become available since indicate irrefutably that the favorable influence of the continued increase in the average daily or weekly wages paid to employees covered by the Workmen's Compensation Act is being more than offset by the increase in average indemnity and medical claims. Thus, if the Board continued to take account of the trend in wages alone during the period subsequent to the end of the two policy years and ignored other known factors affecting rate needs it would fail to comply with the statutory requirement that it make 'fair, reasonable and adequate' rates.
>
> The Rate Level Adjustment formula of the National Council on Compensation Insurance takes account not only of the effect of payroll 'sweetening' but indemnity and medical costs as well, and the rates set out in Exhibit A have been determined by using this factor in lieu of a formula measuring the effect of wages alone."

This action of the Board was supported by the carrier which had formerly been convinced of the desirability of a wage trend factor and, of course, was welcomed by the other carriers who had always viewed such factor with, to put it mildly, considerable skepticism.

Ed Allen's "Notes" have, in my opinion, clearly and objectively pointed up the many serious problems involved in the introduction of a wage factor in the compensation rate structure. I think Ed is to be congratulated in bringing these problems forcefully to our attention.

NOTES ON THE EFFECT OF WAGE CHANGES ON WORKMEN'S COMPENSATION PREMIUMS AND LOSSES

EDWARD S. ALLEN

Volume XXXIX, Page 59

WRITTEN DISCUSSION BY FRANK HARWAYNE

Mr. Allen's paper is one that has been long overdue. The subject of wage factors has been one of controversy for a great many years. It is well that attempts to define the problem are being made within the Society.

One point missed by the paper (but fortunately included in the formula used) is that when average number of hours of exposure to hazard increases, indemnity losses and medical losses will increase. Therefore (using Mr. Allen's reasoning) rate levels as otherwise calculated should be increased in order to avoid inadequate premiums. It would also follow that a reduction in average number of hours of exposure to hazard would require a decrease in rate levels as otherwise determined.

There is no disagreement that wage factors should be based on individual state data wherever possible.

For purposes of clarifying some possible misunderstanding concerning the validity of the samples used by the New York Department of Labor in determining averages in various industries. Mr. Allen's table of percentages of all employees included in the samples for each industry group is shown below, *together with the approximate number of employees covered by the sample* (obtained by applying the percentages to the total employments by industry):

	Percent	*Approximate Number of Employees in Sample*
Manufacturing	47%	910,000
Extracting	43%	5,000
Contracting	25%	60,000
Utilities	30%	150,000
Trade	23%	290,000
Finance and Insurance	14%	60,000

Interested members and students might wish to determine to what degree averages based on the sample data might be expected to vary from the true averages of the total population.

It has been stated that "the percentage of the sample varies rather widely by individual categories within industry group. . . . The data are somewhat heavily weighted with large employers. . . ." In answer to this it should be noted that:

The influence of large employers' data is present in both the base period and the period being compared so that the index of *change* is relatively accurate.

In addition, studies of Expenses by Size of Risk indicate that large risks comprise about 10% of all risks and produce over 75% of the premium for all risks. For some industries where a large variation in wage rates prevails the Department of Labor uses stratified samples.

The variation in average weekly earnings and hours and wage rates by individual categories within industry groups is reflected in the averages for the industry group. The influence of wages on workmen's compensation insurance premium and loss requirements is an overall adjustment item in the same sense that the adjustment of calendar year premiums to rate level is an overall adjustment item. It is proper for adjusting the business as a whole to special conditions.

Assuming the wage factor computations to be correct and valid by geographic area the fact that the New York City results differ from that of Elmira, Buffalo or some other area is of no consequence because the rates apply statewide and make no differentiation between territories. To attempt to do so for wage factor calculation alone is spurious.

There are a number of arguments for not reflecting the limitations on payrolls due to exclusion of certain payroll amounts. Elimination of that portion of payroll which is assumed to be overtime ignores completely the guaranteed wage contract or Belo-type contract which has become so popular in recent years. For insurance payroll purposes the guaranteed wages of these contracts are included even if such guaranteed wages contemplate earnings for hours in excess of forty hours. The estimate of 37 hours as the average straight time hours worked has less foundation than the estimate determined by the least squares method which Mr. Allen has acknowledged to be more proper.

The reduction in November 1949 average weekly wages from October 1949 is largely accounted for by the reduction in average number of hours worked and may be tied up with such events as the steel strike. The fact that adjusted wage results may not agree with preconceived notions is not sufficient reason for discarding such results. It is assumed that the payroll limitation rule applies to the first $100 of weekly payroll and that this is completely synonymous with the rule which actually refers to the first $5,200 of annual payroll. Finally it is assumed that the wage distribution tables used in the National Council law amendment calculations are accurate and sensitive enough to measure that small segment cut off by the payroll limitation rule.

It has been stated that an overall factor is not proper because there exists considerable variation in wage changes by industry and territory. Carrying this thought over to the field of loss experience who would argue that setting a rate level based on overall experience is improper because considerable variation in loss experience changes exist by classification and territory?

A perusal of Mr. Allen's Exhibit E should be sufficient to indicate that between policy year 1948 and composite calendar year July 1, 1949-June 30, 1950 the reduction in average weekly hours (decrease in exposure to hazard) outweighed the reduction in adjusted average weekly wages. It was the fact that there was less hourly exposure which resulted in what appears to the uninitiated to be an anomalous situation.

The purpose of applying a wage factor is to adjust past experience to reflect current conditions (this is avowedly the purpose in applying factors to adjust to rate level also). Having done this, a proper judgment of levels for the coming experience period may be made. The use of calendar year experience by Mr. Allen may be criticized in that the calendar year experience is affected by changes of prior policy years (reserve policy, etc). In addition it should be observed that the effect of a wage factor is not cumulative but is reflected in the experience at a subsequent date.

The statement that claim frequency and severity offset the wage change effect might be pursued further in a quantitative way. The table of experience factors, wage factors and other factors might be more impressive if it were not for the fact stated above that calendar year experience suffers from the ills of prior policy years and therefore calendar year experience is nothing but a quicksand base from which to measure "other factors." Finally, it can be observed, in retrospect, that had the ratemaking organization relied on average underlying pure premiums in effect during the experience period rather than on the theoretical underlying pure premiums in effect at the time of each rate revision, rate levels would have produced better underwriting results than actually occurred for the postwar period. Who would argue that the former method is better because it offsets "imponderables" acting in a direction opposite to the adjustment indicated by past rate changes? Such a procedure merely leaves one with a blind faith that there will always be "imponderables" to offset procedures which only the naive could claim to conform to the thought expressed by Alexander Pope that whatever is, is right.

The conclusion expressed by Mr. Allen that published wage data have "possible sample bias" and include self-rated and self-insured data ignores completely that our interest in the data is from the standpoint of change from one period to the next. There is no reason to believe that the change in wages and hours differs materially by size of establishment or that minor changes in reporting necessarily make comparisons of data between periods invalid. If, as seems to be the case, these data are useful for measuring change, it becomes unnecessary for insurance carriers to obtain wage data from insurance statistics. If the carriers seriously believe material differences do exist, the expense and effort of compiling wage data may be worthwhile.

Concerning adjustments for overtime and payroll limitations, these seem to be undue refinements to the writer. What has unjustly been called "the actuaries' disregard of realities" is quite the opposite. If employees' exposure to hazard has been increased because more hours are worked and higher rates of pay are earned then the increased exposure requires increases in rate level. Likewise reductions in rate level can occur during a period of falling wage levels. The effects of changes in wages and hours on rate levels must be assessed in light of the facts and how these facts affect insurance transactions.

A fuller discussion of monthly and seasonal variation in industry might be desired. A period of less than twelve months might be used in calculating a wage factor if there is sufficient reason to believe that the shorter period is indicative of wage levels to be expected during the period for which rates are made.

The ratemaking procedure without the inclusion of a wage factor assigns the same weight to wage changes as to loss changes. This is essentially incorrect because wage changes are reflected in full in the payrolls for the period for which rates are made whereas loss changes may or may not be so reflected. Concerning a medical projection factor, in New York State medical losses are adjusted through law amendment factors to reflect the most recent agreement affecting the cost of medical care. What is this but a projection of actual medical costs to reflect costs which are expected to prevail during the period when the new rates are in effect?

As used in New York, the wage factor acts as a "governor" or "balance wheel" on the rate level.

In conclusion a wage factor represents a technical adjustment to reflect recent conditions and is therefore on a par with the adjustment of experience to reflect current rate levels and current law levels. The adjustment is necessary so that the ratemaking body may be able to evaluate properly, the past experience results if recent and current conditions had prevailed during the experience period. With this as a springboard it is possible to dare predict the levels required for the uncertain future.

REPLY TO THE DISCUSSION OF THE EFFECT OF WAGE CHANGES ON WORKMEN'S COMPENSATION PREMIUMS AND LOSSES

BY EDWARD S. ALLEN

Mr. Harwayne's discussion is particularly welcome because, with regard to the use of wage factors, we hold very strong convictions which are diametrically opposed.

In his discussion, he has introduced the idea that an increase in the average number of hours worked requires an increase in rate level in addition to the automatic increase in premiums resulting from higher aggregate payrolls due to the longer hours. This point was not mentioned in the paper nor was it included in the wage factor formula. The inclusion in the formula of the change in average weekly hours is for the purpose of eliminating, from the change in average weekly wages, that portion which is caused solely by the change in hours. If it is assumed that longer hours produce more fatigue and, therefore, increase the accident potential, we have a problem different from the measurement of a wage change effect.

There are, of course, a large number of employees included in the samples used for industry group wage data. The reliability of the samples, however, depends as much on the selection of the employees included as on the number of employees included. It is not asserted that the samples are not reliable. It is merely pointed out how easy it would be for bias to enter the sample. If such bias should enter the sample through a change in the units or areas reporting, the measurement of a wage change as well as the absolute value of wages could be appreciably affected. In New York, the data to which a wage factor would be applied are statistics of insured employers exclusive of those large enough to be self-rated. A wage factor is influenced largely by large insured and self-insured risks which are excluded from rate-making data. Even though we are measuring changes rather than absolute values, the timing of changes within the two groups may be quite different.

As to the variation by industry and territory of wage change indications, such variation is not important in itself if we are reasonably certain that we have a proper estimate of statewide changes. What was not originally made sufficiently clear is that such variation is a warning of the difficulties involved in obtaining a representative sample. How different our rates might be if based on a sampling of the loss experience in each classification is an interesting speculation.

Mr. Harwayne's points with respect to the bonus overtime adjustment illustrate well the approximate nature of the adjustments which it is necessary to apply to the published data. I cannot agree, however, that adjustments for overtime and payroll limitation are undue refinements. As is illustrated in exhibits compiled for this paper, these adjustments can affect the change in average weekly wages by as much as 3% or more. If wages continue to increase, the effect of the payroll limitation rule becomes increasingly important. In Exhibit A it will be noted that the effect is 0.5%.

One minor point concerns the reduction in average weekly wages from October to November of 1949. The reduction, even after adjustment, is more than can be accounted for by the reduction in average hours worked. The preconceived notion referred to is not the basis for discarding anything, but is a consideration in evaluating alternative methods of approximation.

In the same paragraph, Mr. Harwayne makes certain assumptions with respect to the payroll limitation rule. The payroll limitation rule does not apply to the first $100 of weekly payroll and there is no rule which I can find that actually refers to the first $5,200 of annual payroll. The payroll limitation rule excludes remuneration earned in excess of an average of $100 per week for the total time employed during the policy period.

Mr. Harwayne has pointed out that, in Exhibit E, the indicated reduction between policy year 1948 and composite calendar year July 1, 1949-June 30, 1950 is due to a greater reduction in average weekly hours than in average weekly wages. From a public relations standpoint, there would be no difficulty in explaining this result to an insured since the final result is a reduction in rate level. A complication arises, however, in the indicated increase for the period from composite policy year July 1, 1948-June 30, 1949 to calendar year 1950. In this instance, there is not a greater increase in average weekly hours than in average weekly wages. The increase must be explained as a combination of the effects of adjustments for bonus overtime, payroll limitation, effect on indemnity losses and change in average weekly hours.

As to the use of calendar year experience in comparing the effects of wage and experience changes, it does not seem likely that "reserve policy, etc." could account for indicated increases for eight successive years.

It has been noted by Mr. Harwayne that if we had used average underlying pure premiums in effect during the experience period rather than the theoretical underlying pure premiums in effect at the time of each rate revision, rate levels would have produced better underwriting results than actually occurred for the postwar period. As I understand this observation the result could be accomplished by delaying the application of each revision for approximately two and one-half years. I do not know what calculations were made to indicate this result, but it would be surprising if the "imponderables" which were responsible for the result were consistent from year to year in producing such result. The "imponderables" which largely offset wage factor reductions and which indicated higher than one wage factor increase were fairly consistent for the latest eight years of the nine-year period. No one can say at this time whether such "imponderables" will reverse their indications during a period of decreasing average weekly wages or even whether they will continue their past consistency.

An evaluation of the effect of monthly and seasonal variation would require a fairly substantial amount of study. If a wage factor is to be based on a period of time less than a year, a full study should, of course, be made.

I disagree very strongly with the statement that it is essentially incorrect to assign the same weight to wage changes as to loss changes, and I do not agree that a wage factor adjustment is on a par with the adjustment of experience to reflect current rate levels and current law levels. There is no reason to assume that wage changes are reflected in full in the payrolls for the period for which rates are made and that loss changes may or may not be so reflected. If wages and losses have been increasing, they may both continue to increase, they may both decrease, or they may go in opposite directions. Changes in rate levels and law levels become effective at a specific point in time for all insured risks. They are, therefore, susceptible to measurement prior to the date on which they become effective. Wage and loss changes can be measured only from statistics which reflect the results of such changes. Insurance statistics reflect the composite of these changes to approximately the same point in time as wage statistics reflect the results of wage changes only.

Concerning Mr. Skelding's discussion, there is very little to be added or commented upon, since I do not take exception to anything which he has stated. It is not surprising, however, to find many proponents of the use of wage factors because of the strong logical arguments in their favor. In spite of previous experience with wage factors and recent study as set forth in this paper, I believe it is up to the industry to continue a review of wage change effects as more experience becomes available until little doubt, concerning whether or not such factors should be used, remains in the minds of everyone familiar with the data.

A STATISTICAL STUDY OF LARGE FIRE LOSSES WITH APPLICATION TO A PROBLEM IN CATASTROPHE INSURANCE

BY L. H. LONGLEY-COOK

Volume XXXIX, Page 77

WRITTEN DISCUSSION BY FRED DOREMUS

This study is a worth-while contribution to the business of fire insurance underwriting and should be equally valuable to that group of studious men, employed by large organizations, responsible for buying insurance for their employers. We can not see that this study would have too great an appeal to brokers or agents.

The point is well made in this study that it is not possible to develop a rate of premium per $100 of coverage. Instead, a suitable premium in dollars must be selected on a judgment basis with relation to the limited exposure above a high fixed amount of first loss sustained by the insured. The determination of the amount of premium could well become highly competitive if any sizeable market existed for the writing of catastrophe insurance.

While not set forth in the study, the view could be taken that two or more catastrophe insurance covers should be offered to the same insured having high values concentrated in a limited geographical area. The second and subsequent ones being for higher limits than the first, and each additional one treating the total of all preceding ones as the amount of "first loss sustained." Each additional catastrophe cover would then have a premium selected on a judgment basis giving due consideration to the lessened possibility of loss as reflected in the distribution of large losses as contained in Table No. 1 which relates number of losses to size of loss.

While there is a real academic value to this study of catastrophe insurance, it has long been my view that a realistic approach to the sale of our regular product to self-insurers would have more lasting value to our insurance economic structure than the development of this type of partial protection which encourages the expansion of self-insurance.

NEW YORK COMPENSATION RESERVE SCHEDULE R

BY MATTHEW RODERMUND

Volume XXXIX, Page 71

WRITTEN DISCUSSION BY ROGER A. JOHNSON

Mr. Rodermund's well-written paper is a valuable contribution to the proceedings of the Society for it casts light on a subject not covered, to my knowledge, in any previous paper. Since only New York domestic mutual companies are required to utilize Schedule R, the subject is one which has not generally received much attention elsewhere. Mr. Rodermund has made a concise, factual presentation of his subject, with which it is difficult to find fault.

Because of the work involved first in the actual preparation of Schedule R itself, and secondly, in the eighteen schedules which must be filed with the New York Insurance Department by December 15th each year, which enable the Department to calculate the necessary factors for the coming December 31 statement, there is some opposition to Schedule R. The fact remains, however, that over a period of years, the reserves produced by Schedule R methods have proven to be remarkably accurate. Schedule R, by reason of the fact that adverse development of cases in the recent past is recognized in the calculation of its values, seems to reflect periods of rising loss ratios or increasing costs much sooner than do regular reserve methods.

The following elements in Schedule R are chiefly responsible for the final result being different from Schedule P or other reserve methods:

(1) All claims, other than death, incurred during the last six months are set up at a constant value, such constant varying from year to year and from company to company in accordance with each company's own experience.

(2) Temporary cases, not closed by awards, incurred more than six months ago, are set up on case estimates or $2,000, whichever is the greater.

(3) Temporary cases, not closed by awards, incurred more than three years ago, and having three years of disability, are set up on a permanent total basis.

(4) In addition to case estimates on all open cases older than six months, a percentage contingency loading is included, which is based on the individual carrier's past experience with such cases.

(5) A reserve for reopened cases.

It is suggested that carriers not now using Schedule R would do well to investigate its possibilities, not with the idea of adopting it lock, stock and barrel, but with the idea of using it or a similar method as a check on reserves determined by other means.

PROCEEDINGS

November 19, 1953

PLAIN TALK

PRESIDENTIAL ADDRESS BY THOMAS O. CARLSON

Having had occasion recently to review the characteristics that we look for in our annual survey of the college output to select potential actuaries, I came up with three guides: a natural bent for mathematics, facility in self-expression, and personality, in that order. A normal degree of intelligence is, of course, presupposed, though not easily appraised, since it is not necessarily to be measured by college grades; and to spot a very high degree of intelligence (note I am speaking of intelligence, not of intellect) is more difficult than winning at roulette. As for that rarest of misnamed commodities, common sense, the best that one can do is to burn nail parings in a fairy ring under a full moon at sharp midnight and keep one's fingers crossed throughout the first three years of training.

Since I am primarily concerned today with the second of these three characteristics, facility in self-expression, let me dispose of the first and third rather briefly.

A natural bent for mathematics is far more important than an extensive knowledge of mathematics. In fact, it has been my experience that the latter may be a deterrent to actuarial proficiency, that the individual who has become so absorbed in mathematics that he has plunged into speleological exploration of its ramifications, with or without a rope around his waist to guide him back to the world we know, cannot tread like a mortal on the ground footed by the unlearned underwriters and executives. One would need seven-league boots and a magic thinking cap to keep pace. There are exceptions, and notable ones, in our midst but we are speaking of rules of thumb, and fundamentally what we seek is not the mind that is attracted magnetically to the aesthetic delights of the theory of numbers, but rather the mind that is capable of coping with that theory to any extent necessary and that turns naturally to more utilitarian applications of its powers.

You may ask, why even a bent for mathematics, with our professional trend to simplicity in analytical approach and our recognition of this in a progressive excision of mathematics from our Society examinations (an evolution, by the way, that I am not criticizing but rather have long supported). There are occasions when we really need mathematics, and usually when that knowledge is needed the need is great. But, more important, the type of mind that follows easily the logical processes of mathematical subjects is the type of mind we find in a good actuarial analyst.

But a good actuarial analyst is not necessarily a good actuary. More is needed. If he cannot externalize his thoughts so that others will understand, he is of limited use to any organization. For such a projection of his ideas he needs facility in self-expression, and personality will be a valuable adjunct. The actuary is becoming more and more a contact man in our "other than life insurance" area in the industry. He is a consultant and a salesman as well as an analyst. His importance in this respect has developed rapidly in recent years, especially since the S.E.U.A. decision, with industry committees and contacts with public officials drawing more and more upon his services, whether he be connected with a company, a service organization or a state department.

So much is wrapped up in the word personality, that to begin on the subject would involve entering into a lengthy, inconclusive and probably platitudinous discourse. Volumes have been written on it and we were referred by our dinner speaker a year ago to an excellent treatise entitled "How to Succeed in Business Without Really Trying."

I hasten on to something that I think I can talk to with rather more authority, this matter of self-expression, to which insufficient attention has been given.

Just ten years ago one of our Past Presidents, Syd Pinney, asked himself, "What is so peculiar about an actuary?", and gave us his answer in his own inimitable fashion. If you will reread his whimsical remarks you will observe that they were far more substantial than our entrancement with his play of wit at the time could permit us to realize. As with Tennyson's brook, there were depths in many "eddying bays" between the "sparkling sallies."

Among the solid tenets that he sandwiched in was the necessity for plain talk, one-syllable words as he put it, on the part of the actuary. That necessity is greater today than it was ten years ago because actuaries today are more numerous and more often consulted in policy determination. If we are to be truthful in self-criticism, we shall have to admit that in progressing beyond the stage in which, to use Mr. Pinney's words, others were conscious of a disparity between our I.Q. and our P.Q. (personality quotient), we have grown in knowledge, in research, in techniques, in depth and breadth generally, and have even encroached upon that jealously guarded prerogative of the underwriter referred to as the "sacred sixth sense," underwriting judgment; but we have not grown correspondingly in articulateness.

Why is this? It would be easy to blame the colleges and even the high schools because it appears to us oldsters that the younger generation, always the readiest and most vulnerable butt of any fault finding, are not coming out of school with training that has prepared them for conveying such ideas as they may develop, whether orally or in writing. It seems a pity that our educational system is cramming knowledge into the heads of students, and is presumably teaching them to think, but is doing next to nothing in the way of teaching them how to communicate. I have discussed this lack repeatedly with college administrative officials and faculty members. While they usually agree with my thesis, they will lay the blame on the high school or pass the buck to the English Department. If these maneuvers are unsuccessful — ordinarily a matter of how long the discussion lasts — I reach a blockade as unyielding as the rock of the end justifying any means, against which one always rams his head ultimately in a discussion with a communist, namely, that "this is not the time" for such a reorientation of educational emphasis. Being in the insurance business, this phrase is not unfamiliar to me, and with resignation I bow, by habit, before the stymie.

But criticism of the schools is too easy an out. While we can believe that we received better preparation in the technique of making ourselves understood, we cannot absolve ourselves from blame both in the matter of setting a good example and in the matter of our responsibility for training the younger generation that, like all younger generations, is comparatively vocative but inarticulate, but that is at least as sound, as imaginative and as intelligent as any that has preceded it. We must not become too complacent as respects our own ability to speak plainly. The lines in my brow came there as much from continued puzzlement over what I have to read and listen to, I am convinced, as from too much work, and I have no doubt I have contributed my share to the brow-creases of my associates.

In probing for an explanation, if we actuaries can stand off for the moment and view ourselves through the eyes of that skeptical and far more populous creature, the non-actuary, three points come to our attention. First there is a widespread suspicion of our most important tool, statistics. This suspicion receives its initial impetus in the popular belief that that tool can be manipulated to prove what anyone wants it to prove, but secondary impulses have been imparted to this reaction by carelessness in the use of the tool. Next we shall find the age-old charge against the technician in any field, that he is lacking in perspective, that he does not have the breadth to comprehend the full significance of the facts with which he is dealing. And finally, we find a real lack of comprehension of the actuary's recommendations, conclusions and arguments not only on the part of the public generally, but even on the part of the executives and administrators who must pass on them. Let us explore each of these points.

Plain thinking must precede plain talk. We should start therefore by considering statistics, their uses and their misuses. They are an implement with so many edges that the careless or untrained user is almost certain to cut himself. There is no excuse for us to do so. But we cannot stop with that. We must always be on the alert for their misuse by others, always educating. Only thus can we establish confidence in their indications. Even though it means covering familiar ground, let us review briefly some of the common pitfalls.

Most statistics result from the interplay of a host of contributory factors. A favorite pursuit of the novice or of the hasty or of the enthusiast is to pick out one of these factors more or less arbitrarily and assume that the statistics prove something about it in isolation from the other factors. For example, the roadbuilder may point to an improved automobile accident record as due to replacement of the old narrow road by somewhat broader lanes, ignoring the role played by modified law enforcement, by rerouting of traffic as a result of other road improvements in the area, by safety education efforts, and many other factors. It is even possible that increased speeds, and consequent increased chance-taking, on the broader pavement introduce an accident-increase factor which is more than offset by the other factors working toward a reduction in accidents. Please don't misinterpret this as a plea for narrow roads. The argument is hypothetical, and purely illustrative.

It is even more contrary to Emily Post, of course, to decide in advance what is to be proven, and then to select those particular statistics that support the case, ignoring all others. This is so gruesomely unethical as to be unworthy of mention, you think? Not at all. You would be surprised at the number of requests that come to us from college students reading, some baldly, some more subtly, "I am going to prove XYZ; please send me any statistical information compiled by your organization that will help me in this proof." It is a fallacy into which many more mature but over-enthusiastic and perfectly sincere people fall constantly. I need recite no more than the city newspaper or civic group that campaigns for a reduction in automobile liability rates because the deaths from automobile accidents have dropped twenty percent in the past twelve months, ignoring the total accident rate, the trend in litigation costs and in jury verdicts, and other factors affecting insurance costs.

Whenever we look at time series, the customary data for many types of review, we watch for trends. In this post-war era we have become particularly conscious of trends, since failure to anticipate them properly has cost the companies many millions of dollars. But trends can be as dangerous in the observance as in the breach of observance. Riding a trend can take you on as wild a flight as mounting a witch's broomstick. This process, which at first sight would seem to be the simplest application of statistics, is as tricky as a Mexican jumping bean, and is not for the novice to determine, but rather should be handled by the most experienced person in the organization, who can bring to bear on the problem all of his background of information as to the probable effect of the many factors that combine to influence the result. I do not feel that it is necessary for me to offer illustrations. They are familiar to all.

Perhaps as tricky is a proper application of the law of large numbers. People are impressed by large numbers, even in this day of multi-billion dollar budgets. The law of large numbers to most laymen means merely a sort of blind faith in the results of large aggregates of statistics which runs counter to the general suspicion attaching to statistical information. We know, however, as mathematicians, that any establishment of credence criteria is dependent upon assumptions. We know that the risk experience represented by ten million dollars of payroll on a class with a $10 rate is far more credible than the risk experience represented by ten million dollars of payroll on a class with a one cent rate. We know that claim frequency has a bearing on the determination of the limits of credence of a body of experience. We know that degrees of credibility are comparative, not absolute, measures. But all of these are not thought processes that it is simple to make others comprehend. Further, in public relations they must be translated with due regard to the psychology of the situation. The same town or state that is delighted to have its experience utilized only to the extent of 20% when the rate level is being increased is outraged by the same 20% credence factor when the rates turn downward.

One last broad group of statistical pitfalls is to be found in the comparison of properly incomparable results. This one really sounds simple to avoid. But how many of us have found company executives comparing loss ratios on two lines of insurance with expected loss ratios of 50% and 60% respectively? Or, to get into somewhat deeper complications, comparing automobile liability loss ratios on a written basis in two states in one of which a financial responsibility law became effective during the year under review? And has not careless presentation on our part occasionally contributed to such erroneous comparisons?

I shall skip over the difficulties of our various bases of compilation, and the various combinations of earned and written premiums with paid and incurred losses, as having been belabored almost incessantly for years; but in doing so I most emphatically am not discounting their importance nor the fact that a great deal of misunderstanding still arises out of entanglement in this respect. This appears to be one of the necessary evils of our analytical work and one in regard to which the educational process can never cease, education of our assistants and trainees, of our superiors and associates, of the public at large.

We must be meticulously careful in our handling of statistics, and alert to their careless use by others, conscious of their shortcomings, and aware always that they are not an end product but only an implement.

To go on to the next point uncovered in our probing, the charge of lack of perspective is a cross that all technicians must bear. Just why one who is intensively trained in some technical line of work is automatically disqualified from having a broad viewpoint on the solution of problems which involve his specialty has always been a poser to me. It runs counter in fact to the usual course of mass thinking which makes each Hollywood glamour girl returning from Europe an authority on international affairs. The problem deserves recognition nevertheless, and can best be met by each one of us giving particular attention to a broad perspective in our daily endeavors, so that the accumulated evidence of our work may in the long run unmask this voodooistic bugaboo.

The final point I made for consideration, clarity in communication, is applicable not only to our actuarial profession but to the insurance industry as a whole. We all stand indicted at the present time by our incomplete success in communicating to the public, in a manner that the public understands, our point of view, our objectives, our explanation of why we take certain action and refrain from certain other action.

Like all professions, we have our own lingo and it is a necessary part of our equipment if we are to consult together, for it is just such a lingo that prescribes precise definitions of terms without which delaying wrangles and confusion would ensue. But most of our work must ultimately be translated into an exposition that can be communicated to executives and administrators who are laymen as respects our language, and even more so as respects our techniques. Beyond that, we must bear in large measure the burden of justifying our results and conclusions to the public at large. And in both of these tasks we have need for plain talk backed up by plain thinking. As Walter Weisenburger of the N.A.M. once said: "Business is a publicity, as well as an economic, game. We've learned to contact the moon, but we still have trouble contacting the public."

This is all more easily said than done. The ever-mounting pressure of work in these post-S.E.U.A. years has unquestionably been a factor in interfering with the clear presentation of our ideas. The work always seems to run ahead of the development of personnel competent to handle it. And the problem of translation into non-technical, or comparatively non-technical, terms is difficult even with leisure. But let us not overlook also a certain, perhaps too frequent, carelessness. It is so easy, simply because we understand ourselves, to assume that everyone else understands us also.

Nothing in our work is more difficult than to condense our analytic formulas to language that can be understood by the man in the street. Time was when this was not of pressing moment. That time is long gone. We have a vital role to play in the field of public relations, and there is no aspect of our profession more important at the present time than our intelligent fulfilment of that role.

THE UNIFORM STATISTICAL PLAN FOR FIRE AND ALLIED LINES

BY

CLYDE H. GRAVES

A few years ago, the scope of activities of the Casualty Actuarial Society was enlarged to cover Fire and Allied Lines Insurance. Three papers dealing with fire insurance rate making have appeared in the *Proceedings*—" Problems of Fire Insurance Rate Making"* and "A Statistical Study of Large Fire Losses with Application to a Problem in Catastrophe Insurance"** by L. H. Longley-Cook and "A Casualty Man Looks at Fire Insurance Rate Making"* by M. H. McConnell. It is the purpose of this paper to discuss the statistical plan which serves as the basis for the recording and reporting of fire and allied lines insurance experience.

Under the administrative section of the rate regulatory laws, three organizations — the National Board of Fire Underwriters, the National Association of Independent Insurers, and the Mutual Insurance Advisory Association — collect and consolidate fire and allied lines insurance experience for the insurance commissioners. The statistical plans adopted by these organizations are based on the "Uniform Statistical Plan" adopted by the National Association of Insurance Commissioners in June 1946.

For a number of years prior to 1946, the National Board of Fire Underwriters collected experience of its member companies on a classification system consisting of 26 occupancy classes. From the standpoint of state supervisory officials, such a condensed classification system was unsatisfactory and the New York Insurance Department, during 1944 and 1945, conducted intensive studies on the proper classification of fire risks. On the basis of these studies, and, after consultation and cooperation with representatives of the industry—both stock and mutual—the New York Department prepared a system for classification of fire insurance risks. A subcommittee of the N.A.I.C. Fire and Marine Committee worked with the New York Department on developing this classification system. The National Association of Insurance Commissioners, on June 12, 1946, adopted this classification system as "The Uniform Statistical Plan" for the classification of fire insurance risks. Its adoption was reported as a step towards the establishment of a more equitable system of fire insurance rating.

The 115 occupancy classifications established by the "Uniform Statistical Plan" are listed in Appendix A to this paper.

The following instructions for reporting fire experience were also adopted by the N.A.I.C. as part of the "Uniform Statistical Plan."

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> "The annual reporting of classified fire experience by states shall be on a direct basis, without consideration of reinsurance assumed or ceded. Insurers shall report: premiums written (less return premiums) : losses paid (less salvages). Claim expenses shall not be included with losses. The statistical code numbers set forth herein are suggested for the guidance and convenience of the companies in the interest of uniformity but for the time being are not mandatory."
>
> "The classified experience of insurers will be required to be reconciled in the aggregate with corresponding totals of premiums and losses reported on the State Page of the Annual Statement."

The record of the development of the "Uniform Statistical Plan" is contained in a publication prepared by the New York Insurance Department in 1947 entitled "Classification of Fire Occupancy Hazards." This publication sets forth in detail an explanation of the reasons for the establishment of each of the 115 classes.

The "Uniform Statistical Plan," in addition to the occupancy classifications, provides 6 construction and protection codes to be used in the recording and reporting of fire experience. Therefore, actually, the plan established 690 distinct classifications of fire insurance risks. It should be pointed out that the old 26 occupancy classifications were also subdivided as to protection and construction.

The following sections of this paper will discuss the classification system adopted for the allied lines, the adoption of the "Uniform Statistical Plan" by the various states and the procedures followed by the National Board and by the Mutual Insurance Advisory Association in collecting and compiling experience in accordance with the "Uniform Statistical Plan."

There will also be sections dealing with modifications of the plan adopted by the N.A.I.C. since 1946 and with changes recommended by certain insurance departments which are currently being considered. In addition, the procedures used by the National Board and by the Mutual Insurance Advisory Association to obtain experience on an earned premiums-incurred losses basis will also be discussed. The changes in the statistical plans of these organizations to obtain earned premiums and incurred losses are not a part of the "Uniform Statistical Plan" although they have been officially adopted by a number of state insurance departments.

The concluding section of this paper will point out the problem now confronting various fire rating bureaus and state insurance departments with respect to the proper utilization of data collected under the "Uniform Statistical Plan."

MAJOR PERIL CODES

The 115 occupancy classes listed in Appendix A relate to insurance against the peril of fire with respect to loss from physical damage of property. Other classification codes are provided for coverages involving time element and loss of income resulting from fire and for the coverages known as the Allied Lines.

The "Uniform Statistical Plan" provides the following major classifications of fire and allied lines:

Major Peril Code No.	*Description of Major Classification*
10	Fire Physical Damage
11	Fire Time Element
20	Extended Coverage Endorsement No. 4 (or equivalent) Physical Damage
21	Extended Coverage Endorsement No. 4 (or equivalent) Time Element
22	Extended Coverage Endorsement No. 3 (including Sprinkler Leakage) Physical Damage
23	Extended Coverage Endorsement No. 3 (including Sprinkler Leakage) Time Element
24	Extended Coverage Endorsement including wave wash
26	Additional Extended Coverage Endorsement
30	Windstorm and Hail (except Growing Crops) Physical Damage
31	Windstorm and Hail (except Growing Crops) Time Element
43	Flood
44	Rain
45	Water Damage Physical Damage
46	Water Damage Time Element
47	Sprinkler Leakage (other than E. C. E.) Physical Damage
48	Sprinkler Leakage (other than E. C. E.) Time Element
56	Explosion Including Riot and Civil Commotion Physical Damage
57	Explosion Including Riot and Civil Commotion Time Element
60	Earthquake Physical Damage
61	Earthquake Time Element
64	Aircraft and Vehicle Property Damage
66	Hail on Growing Crops

The "Uniform Statistical Plan" does not provide codes for other major classes of business not normally written in connection with fire policies such as Automobile Physical Damage, Aircraft Hull, and Inland Marine. Experience on these coverages are coded and reported under other statistical plans. Recently a number of multiple line policies have been developed, some on a schedule basis and some on an all-risk basis. Experience under these multiple line policy forms are not coded and reported under the "Uniform Statistical Plan" except for the Additional Extended Coverage Endorsement for which Major Peril 26 has been established.

FIRE PHYSICAL DAMAGE—CONSTRUCTION AND PROTECTION CODES

Fire Physical Damage business, reported under the 115 occupancy classes, is reported also by Construction and Protection in accordance with the following codes:

		Code No.
Frame	Protected	1
Frame	Unprotected	2
Brick	Protected	3
Brick	Unprotected	4
Fire Resistive	Protected	5
Fire Resistive	Unprotected	6

The classification of a risk as protected or unprotected depends on the classification of its location by the fire rating bureau having jurisdiction over the area.

FIRE TIME ELEMENT

Fire Time Element which includes Business Interruption, Profits and Commissions, Leasehold, Rents, Extra Expense and Errors and Omissions is reported under Major Peril Code 11 classified only as Manufacturing or Non-Manufacturing.

ALLIED LINES

Allied Lines embrace the coverages (Physical Damage and Time Element) of Extended Coverage, Additional Extended Coverage, Windstorm and Hail, Flood and Rain, Sprinkler Leakage and Water Damage, Riot and Civil Commotion, Earthquake, Aircraft and Vehicle Property Damage, and Hail on Growing Crops.

The Extended Coverage Endorsements and Windstorm and Hail (Physical Damage) experience is classified as follows:

RISK	DEDUCTIBLE	ORDINARY CONSTRUCTION		WIND RESISTIVE CONSTRUCTION	
		Inland	Seacoast	Inland	Seacoast
Dwellings	Without Deductible	1110	1210	1310	1410
	Deductible Applicable	1120	1220	1320	1420
Mercantile	Without Deductible	2110	2210	2310	2410
	Deductible Applicable	2120	2220	2320	2420
Non-Manufacturing	Without Deductible	3110	3210	3310	3410
	Deductible Applicable	3120	3220	3320	3420
Manufacturing	Without Deductible	4110	4210	4310	4410
	Deductible Applicable	4120	4220	4320	4420
Farms	Without Deductible	5110	5210	5310	5410
	Deductible Applicable	5120	5220	5320	5420
Highly Susceptible Risks	Without Deductible	6110	6210	6310	6410
	Deductible Applicable	6120	6220	6320	6420

Water Damage Physical Damage (Excluding Combination Residence Policies) is classified as follows:

RISK	SOLE OCCUPANCY	MULTIPLE OCCUPANCY
Buildings	0005	0007
Contents		
With D-1 Damageability Charge	0015	0017
With D-2 Damageability Charge	0025	0027
With D-3 Damageability Charge	0035	0037
With D-4 Damageability Charge	0045	0047
With D-5 Damageability Charge	0055	0057
With D-6 Damageability Charge	0065	0067
With D-7 Damageability Charge	0075	0077
With D-8 Damageability Charge	0085	0087
Apartment buildings, churches, hotels, residences	0105	0107
Liability imposed by law	0090	0090

Sprinkler Leakage Physical Damage (Other than Extended Coverage Endorsement) is classified as follows:

RISK	LIMITED OCCUPANCY		MULTIPLE OCCUPANCY
	Manufacturing	Non-Manufacturing	
Buildings	0000	0000	0000
Contents			
With D-1 Damageability Charge	0015	0016	0017
With D-2 Damageability Charge	0025	0026	0027
With D-3 Damageability Charge	0035	0036	0037
With D-4 Damageability Charge	0045	0046	0047
With D-5 Damageability Charge	0055	0056	0057
With D-6 Damageability Charge	0065	0066	0067
With D-7 Damageability Charge	0075	0076	0077
Liability imposed by law	0090	0090	0090

Time Element business written under Extended Coverage Endorsements, Windstorm and Hail, Water Damage, Sprinkler Leakage and the Time Element Coverages of Flood, Rain and Earthquake are classified as Manufacturing or Non-Manufacturing in addition to the Major Peril classifications.

Physical Damage policies for Explosion Including Riot and Civil Commotion are classified into 4 groups by type of occupancy. These occupancy groups are defined by the Explosion Manual published by the Allied Lines Association.

Earthquake Physical Damage experience is classified by Construction and Zone and with respect to whether or not the building is earthquake resistant.

Aircraft and Vehicle Property Damage Insurance policies are classified as follows:

1 for all property not included in 2 and 3 below
2 for property located on flying fields
3 for Golf and Country Club Grounds
4 Use and Occupancy, Profits and Commissions, Rents, Leasehold, Extra Expense
5 Gasoline Pumps

The Additional Extended Coverage Endorsement, Time Element policies for Explosion Including Riot and Civil Commotion and for Hail on Growing Crops are coded and reported by Major Peril only.

ADOPTION OF THE "UNIFORM STATISTICAL PLAN"

The "Uniform Statistical Plan," developed jointly by the National Association of Insurance Commissioners and the Fire Insurance Industry, was approved by the N.A.I.C. in June 1946. Action by the N.A.I.C., however, is only of an advisory nature to the insurance departments of the various states. For companies operating in a particular state to be required to code and report classified Fire and Allied Lines Insurance experience, it is necessary for each insurance department to officially adopt a statistical plan. At the present time, the "Uniform Statistical Plan" has been officially adopted by 41 states as well as the territories of Alaska, Hawaii and the District of Columbia. Appendix B presents the status of the "Uniform Statistical Plan" in each of the states as well as the date on which the plan was made effective in each state. Although the "Uniform Statistical Plan" has not been officially adopted by Idaho, Indiana, Mississippi, Montana and Vermont, both the National Board of Fire Underwriters and the Mutual Insurance Advisory Association collect Fire and Allied Lines Insurance experience in accordance with this plan for filing with these states. With respect to California, the law in that state does not contain any provision for the adoption of statistical plans. Fire and Allied Lines Insurance experience for the State of Texas is collected under a special classification system.

CALLS FOR EXPERIENCE

Each year, the three statistical agents—the National Board of Fire Underwriters, the Mutual Insurance Advisory Association and the National Association of Independent Insurers—issue annual calls for Fire and Allied Lines Insurance experience which include detailed instructions relative to the reporting of experience and information relative to filing dates. The state insurance departments and their appointed statistical agents have developed the following schedule of dates for the reporting of experience by the companies:

March 15	—Louisiana
April 1	—Alabama, Arkansas, Michigan, Wisconsin
April 15	—Florida, Kansas, Missouri, Tennessee, Washington
May 1	—Colorado, Kentucky, Maryland, Minnesota, Oklahoma
May 15	—Indiana, New Hampshire, North Carolina, Ohio
June 1	—Illinois, Nebraska, Rhode Island, Vermont, West Virginia
June 15	—Alaska, Idaho, Mississippi, New Mexico, North Dakota, Pennsylvania, Virginia, Wyoming
July 1	—Connecticut, Delaware, Maine, New Jersey, New York, South Dakota
July 15	—Arizona, Georgia, Hawaii, Massachusetts, Nevada, Utah

August 1—Iowa, Oregon, South Carolina
August 15—District of Columbia, Montana

The statistical agents audit the experience filed by the companies and prepare consolidations for filing with the various insurance departments. In compliance with the section of the rating law pertinent to the recording and reporting of experience the consolidated experience is made available by the statistical agents to the state fire rating bureaus.

MODIFICATIONS OF THE "UNIFORM STATISTICAL PLAN"

There have been only a few changes in the "Uniform Statistical Plan" since 1946. Originally, the extended coverage endorsements were classified into the following eight groups:

1. Dwelling—Inland
2. Dwelling—Seacoast
3. Other than dwelling—Wind Resistive—Inland
4. Other than dwelling—Wind Resistive—Seacoast
5. Other than dwelling—Ordinary—Inland
6. Other than dwelling—Ordinary—Seacoast
7. Farm Property—Inland
8. Farm Property—Seacoast

At the present time there are 48 distinct classifications for extended coverage endorsements. Experience under these endorsements are coded and reported in accordance with the codes recited in a previous section of this paper.

Prior to January 1, 1952, extended coverage losses were coded and reported by cause of loss. In view of the fact that over 90% of the losses were reported as being caused by windstorm and hail and since there was very little change from year to year in the percentage of losses under the various cause of loss classifications, this requirement was eliminated.

Until January 1, 1952, extended coverage time element and windstorm and hail time element were coded in the same detail as extended coverage physical damage. The "Uniform Statistical Plan" was simplified by the establishment of only two classes—manufacturing and non-manufacturing—for the reporting of time element experience.

Since January 1, 1952, sprinkler leakage, water damage, explosion, riot and civil commotion, and aircraft and vehicle property damage insurance have been reported on a countrywide basis and not on a state basis as had been the case prior to that time. No changes were made in the classification codes for these coverages.

The "Uniform Statistical Plan"was adopted by the Wisconsin Insurance Department on January 1, 1949, with certain important amendments which had the effect of increasing the number of occupancy classifications.

A number of State Insurance Departments have indicated that the statistical information reported in accordance with the "Uniform Statistical Plan" does not meet their requirements and have proposed modifications which would permit the collection of experience in accordance with rating systems on file in their states. In general, these modifications would provide for a separation of the experience developed under the analytic system of rating from the experience of class rated risks and also for the reporting of experience by territories for certain classes where there are variations in the rates by territories. In an attempt to bring experience and rating systems into closer harmony, insurance raters of some of the states suggested that consideration be given by the N.A.I.C. to the following items:

"1. What steps should be taken to bring the classifications of fire experience into harmony with the rating schedules to the end that the classification experience, when compiled, will furnish a test of the rating schedules and indicate what adjustments, if any, should be made in the charges contained within the rating schedules.
2. Advisability of supplementing the 115 Classifications of Occupancy Hazards to provide for reporting of underwriting experience for classes rated under special schedules not presently being reported separately.
3. Extent to which fire and extended coverage statistical plans of the National Board of Fire Underwriters, the Mutual Insurance Advisory Association and the National Association of Independent Insurers should be amended to provide adequate rate making statistics.
4. Amend the Dwelling and Apartment House definitions in the statistical plan to conform with the filed rating plan definitions.
5. Collect experience for residential and farm property in accordance with the classifications and territories contemplated by the filed rating plans.
6. Collect experience separately on property specifically rated by application of a schedule of charges and credits and property rated under a flat rate or class tariff as contemplated by the filed rating plans.
7. Collect experience separately on property rated under the Analytic Schedule and property rated under Special Schedules, such separation to be in accord with the filed rating plans.
8. Collect experience on seasonal hotel and resort property separately from experience on similar properties occupied all year.
9. Collect Public Building experience in accordance with the definition thereof in states where special rate consideration is afforded such property.

10. Collect Automatic Sprinkler experience for "Manufacturing" and "Other than Manufacturing" risks by Normal and Abnormal classification, determination of such classification to be made by each state.
11. Collect "Superior Form" Automatic Sprinkler experience separately from ordinary sprinkler risk experience.
12. Collect Business Interruption Insurance experience separately from Other Time Element Experience.
13. Collect Extended Coverage experience separately by Building and by contents.
14. To facilitate the review of experience for ratemaking purposes, it is recommended that the statistical agencies combine the classes, the sums of which reflect the experience of the rating plan involved, and submit such combined total to the individual states.
15. Provision should be made in the statistical plan whereby certain additional information in respect to experience on certain rating differentials can be obtained for test purposes. For example, experience on a gross basis or co-insurance basis may be deemed necessary by an individual state or group of states.
16. Should the fire rate differential between approved roofs and unapproved roofs on dwellings be abolished? If not, should statistics be collected to determine and justify a proper rate differential?
17. Should there be a differential in the extended coverage rate on shingle roofs and on composition roofs?
18. Is the rate credit offered under the Automobile Filling Station Form No. 6 justified? What experience, if any, is available to support the credit? Should statistics be required to ascertain and support a proper credit?"

The items relative to amendments of the "Uniform Statistical Plan" have been referred to a Subcommittee of the N.A.I.C. Committee on Rates and Rating Organizations for study.

EARNED PREMIUMS AND INCURRED LOSSES

The "Uniform Statistical Plan" provides for the reporting of experience upon a written premiums and paid losses basis. As early as 1946, when the National Association of Insurance Commissioners was considering the adoption of the "Uniform Statistical Plan," a subcommittee of the Fire and Marine Committee of the N.A.I.C., which had been working with industry representatives, gave serious attention to the problem of adopting a plan for obtaining statistics on an earned premiums-incurred losses basis. This subcommittee, however, withheld recommendation of a formula by reason of the pending ratemaking and uniform accounting investigations and other matters with which the fire insurance industry was then preoccupied.

In October 1948, after lengthy consideration and in anticipation that insurance departments would eventually require experience upon an earned-incurred basis, the National Board of Fire Underwriters published a statistical plan for obtaining earned premiums and incurred losses. The National Board's Statistical Plan provides that companies report written premiums for fire and extended coverage by occupancy-construction classification with a further subdivision by term of policy. The written premiums classified according to term of policy are converted by the Actuarial Bureau of the National Board to earned premiums for each class and construction through the application of conversion factors. In addition to reporting losses paid during a calendar year, companies report losses outstanding on fire and extended coverage as of December 31 of each year.

Effective January 1, 1951, the Mutual Insurance Advisory Association adopted a supplement to the Fire and Allied Lines Insurance Statistical Plan published by that organization which provides for the reporting of written premiums by term of policy and for outstanding losses as of December 31 of each year. The conversion of written premiums to earned premiums is made by the Mutual Insurance Advisory Association on an all-company basis. Neither the plan of the Mutual Insurance Advisory Association nor that of the National Board of Fire Underwriters requires the conversion of written premiums to earned premiums by an individual reporting company. Under these plans, experience exhibits, both on a written-paid basis and an earned-incurred basis, are prepared by these organizations.

The Insurance Departments of Maryland, Massachusetts, Oklahoma, Rhode Island, Tennessee and Wisconsin have adopted as official, the plans of the National Board and the Mutual Insurance Advisory Association for obtaining earned premiums and incurred losses. Other states have not, at this time, required experience on an earned premiums and incurred losses basis but it may be expected that in the near future some of these states will require that experience be consolidated on this basis.

* * * *

For a number of years, the New York Insurance Department has stressed the use of classified experience for both losses and expenses in the making of Fire Insurance rates. New York has not been the only state to express interest in the use of statistics for the determination of whether Fire Insurance rates meet the standards of the rating laws that rates be reasonable, adequate and not unfairly discriminatory. Classified experience, which has been collected under the "Uniform Statistical Plan" has been made available to the various fire rating bureaus for use in ratemaking and has also been made available to state insurance departments for use in rate review.

The proper utilization of the experience collected under the "Uniform Statistical Plan" for use in ratemaking and rate review is still to be determined.

APPENDIX A

FIRE PHYSICAL DAMAGE OCCUPANCY CLASSES

NON-MANUFACTURING RISKS

GROUP 1 — RESIDENTIAL

(Including incidental garages and outbuildings)

Occupancy Class	
002	Household Contents in Mercantile Buildings (Group 2).
007	Boarding and Rooming Houses (except seasonal), Nurses' and Sisters' Homes, Fraternity and Sorority Houses—Buildings and Contents.
009	Household contents of Dwellings, when contents are written on separate policy.
011	Seasonal Dwellings, Seasonal Boarding and Rooming Houses, Camps, Auto Courts, Tourists Cabins—Buildings and Contents.
019	Dwellings—Buildings and Contents, when both are written on same policy.
021	Farm Property including Tobacco Barns, Live Stock, Growing Crops and Hay and Grain in Stacks—Buildings and Contents.
029	Dwellings—Buildings only when written on separate policy.
030	Large Area Housing Developments under Single Ownership (which receive special rating consideration).
031	Apartment Buildings (more than four families) without Mercantile Occupancy.
032	Apartment Buildings (more than four families) with Mercantile Occupancy.
033	Household Contents of Apartments (Classes 030, 031 and 032).

GROUP 2 — MERCANTILE BUILDINGS

(Predominantly Retail or Wholesale Occupancy)

041	Stores and Dwellings (designed for not more than four families) Schedule or Class Rated.
042	Mercantile Buildings (without dwelling occupancy) Class Rated.
043	Mercantile Buildings (other than Class 041) Schedule Rated.

GROUP 3 — Mercantile Contents

(Includes Retail and Wholesale)

Occupancy Class	
051	Heavy Stocks including Machinery (Including those of low susceptibility).
052	Wearing Apparel and Textiles.
053	Food Products and Beverages (Excluding Restaurants and Bars).
054	Restaurants and Bars.
056	Light Merchandise including Mixed Stocks.
057	Extra Hazardous Stocks (Including those of high susceptibility).

GROUP 4 — Non-Manufacturing

070	Office and Bank Risks including Telephone Exchanges and Telegraph Central Stations and Radio Broadcasting Facilities.
075	Hotels, Commercial Boarding and Lodging Houses, Clubs (City and Country).
083	Theatres and Auditoriums.
084	Places of Amusement, Sports and Public Assembly, not included in 083.
085	Hospitals, Sanatoriums, Orphanages, Homes for the Aged and Asylums (except where inmates are under restraint).
090	Churches and Chapels.
093	Automobile Garages, Service and Filling Stations.
094	Airplane Hangars.
100	Penal Institutions including institutions where inmates are under restraint.
105	Educational Institutions (Public or Private) including Libraries and Museums and Auxiliary Buildings on Premises.
110	Bridges, Piers, Wharves and Docks including Coal and Ore Docks.
115	Builders' Risks (except Dwellings as classified by Rating Bureau and designed for not over four family occupancy—See Class Nos. 011, 019 and 029).

GROUP 5 — WAREHOUSE AND STORAGE

Occupancy Class	
121	Warehouses—General, Merchandise, Wool.
122	Warehouses—Household Furniture.
123	Warehouses—Cold Storage.
125	Warehouses—Grains, Beans, Seeds, Peanuts and Rice.
130	Warehouses—Cotton, including Cotton Compresses and Yards.
135	Warehouses—Fibres (except Cotton and Wool) including Fibre Storage Yards.
140	Warehouses—Waste Paper, Rag, Junk.
145	Warehouses—Whiskey, Wines and Spirituous Liquors.
150	Warehouses—Tobacco, including Sales, Storage and Re-handling Houses.
155	Grain Elevators, Tanks and Warehouses—Terminal.
161	Grain Elevators, Tanks and Warehouses—Country.
165	Lumber Yards, Coal & Wood Yards, Building Material Yards.

MANUFACTURING RISKS

GROUP 6 — FOOD AND FOOD PRODUCTS

200	Dairy Products including Ice Cream Manufacturing and Ice Factories.
205	Meat Products—Slaughtering, Packing, Curing, Canning and Quick Freezing, including Stock Yards.
210	Fish Products—Packing, Canning, Curing and Quick Freezing.
215	Grain Milling and Other Milling and Cereal Factories, including Feed Mills and Stock Food Manufacturing and Starch Factories.
220	Bakeries and Confectionery Products including Cracker, Cake, Macaroni and Chewing Gum Factories.
225	Canning, Preserving and Processing of Food (except Dairy, Meat and Fish Products) including Dehydrating, Quick Freezing and Coffee Roasting and Salad Oil Preparations.
230	Sugar, Molasses and Syrup Refining.
235	Beverages (not made in Distilleries, Breweries or Wineries) including Vinegar Works.
240	Breweries including Malt and Yeast Manufacturing.
245	Distilleries.
250	Wineries.
255	Tobacco Factories including Snuff.

GROUP 7 — Textiles — Raw and Finished

Occupancy Class

275 Cotton Gins including Auxiliary Buildings.
280 Cotton and Wool Mills, Textile Knitting and Weaving Mills, Thread and Yarn Manufacturing, Bleacheries, Dye and Print Works, Embroidery and Felt Mills, Carpet Factories, Rope, Cordage and Twine Factories.

GROUP 8 — Clothing and Cloth Products

300 Clothing Factories.
305 Millinery and Hats.
310 Cloth Products (other than Clothing) including Mattress Factories and Sewing Risks (except as otherwise classified) and Window Shade Factories.

GROUP 9 — Furs and Fur Goods

330 Fur Dressing, Dyeing, Blending, Sewing.

GROUP 10 — Leather and Leather Goods

340 Tanneries including Hide Processing.
345 Patent Leather Manufacturing.
350 Shoe and Slipper Factories.
355 Industrial Belting and Heavy Leather Goods.
360 Light Leather Products — Gloves, Bags, Bindings.

GROUP 11 — Wood Products

380 Sawmills and Planing Mills, Shingle, Lath and Stave Mills.
385 Mill Yards (For other Yards, see Class 165).
391 Veneer Mills and Laminated Wood Factories.
395 Woodworking including Furniture Factories, Shops and Cabinet Work.
400 Cooperage — Boxes, Baskets, Crates, Excelsior Mills, Wood Flour Manufacturing, Cork Products.
405 Broom and Brush Factories.
410 Wood Preserving Plants.

GROUP 12 — PAPER AND PULP

Occupancy Class

440 Paper and Pulp Manufacturing.
445 Paper Products including Coating and Finishing Boxes, Tubes, Bags, etc.
450 Pulp Wood Yards, Straw Yards and Baled Waste Paper in Yards.

GROUP 13 — PRINTING AND ALLIED INDUSTRIES

480 Printing Newspapers, Periodicals and Job including Book Binding.
485 Lithographing, Photo-Engraving and Rotogravure Plate Processing (not done in Printing Plant).

GROUP 14 — CHEMICALS AND ALLIED PRODUCTS
(including Paint and Pharmaceutical Factories)

500 Chemical Works — non-hazardous.
505 Chemical Works — hazardous.
510 Chemical Works — extra hazardous.

GROUP 15 — PLANTS FABRICATING PLASTIC, BONE, CELLULOID AND SHELL PRODUCTS

550 Plastic, bone, celluloid and shell products fabricating (including synthetics).

GROUP 16 — RUBBER PRODUCTS

575 Light rubber goods and sundries (including synthetic rubber).
580 Heavy or industrial rubber products including tires (including synthetic rubber).

GROUP 17 — STONE, CLAY AND MINERAL GOODS

Occupancy Class

600 Stone crushing, cutting, quarrying and sand and gravel plants, cement and gypsum plants.
605 Industrial abrasives and asbestos plants.
610 Plaster products manufacturing.
615 Brick, tile and clay products.
621 Mining risks (other than coal), salt works.
625 Mining risks—coal including dredges.

GROUP 18 — GLASS AND GLASS PRODUCTS

651 Glass and Glass Products Factories (other than as classified below).
655 Cut, Ground, Blown and Art Glass Factories.
660 Optical Goods and Lenses.

GROUP 19 — METALWORKERS

681 Heavy — including structural steel, heat treating, foundries and heavy machinery.
685 Light — machine shops, and light machinery and metal specialties including cutlery manufacturing.
690 Precision products—watch, instruments, radio parts, jewelry manufacturing.

GROUP 20 — PUBLIC UTILITIES

730 Electric traction property including trackless trolleys (excluding auto busses).
735 Electric generating stations and auxiliary risks.
740 Coal, Water and oil gas plants and natural gas pumping stations.
745 Water Works, Pumping Stations, Filtration and Sewerage Plants, Police and Fire Department Stations and Disposal Plants and Incinerators.
750 Scheduled Railroad Property.

GROUP 21 — LAUNDRIES AND DRY CLEANING

780 Hand and Power Laundries including Dry Cleaning Establishments using only approved solvents (except for spotting).
785 Laundries and Dry Cleaning Establishments (other than as classified under Class No. 780).

GROUP 22 — OIL RISKS

Occupancy Class	
800	Oil Refining — Mineral and Petroleum including all property used in connection therewith.
805	Casing Head Gasoline Plants, Natural Gas and Crude Oil Pumping Stations, Air and Gas Lift Power Houses, Repressuring Plants.
810	Oil Distribution and Tank Wagon Stations.
815	Oil and Gas Well Lease Properties.
820	Non-Mineral Oil Works — Cottonseed, Linseed, Fish, Soy Bean, etc.

SPRINKLERED RISKS

900	Sprinklered Risks (other than Manufacturing) Buildings.
905	Sprinklered Risks (other than Manufacturing) Contents.
910	Sprinklered Risks (other than Manufacturing) Buildings and Contents — Blanket.
915	Sprinklered Risks (Manufacturing) Buildings.
920	Sprinklered Risks (Manufacturing) Contents.
925	Sprinklered Risks (Manufacturing) Buildings and Contents — Blanket.

APPENDIX B

ADOPTION OF "UNIFORM STATISTICAL PLAN" FOR FIRE AND ALLIED LINES INSURANCE

State	*Effective Date*	*Remarks*
Alabama	1/1/47	
Alaska	1/1/49	
Arizona	1/1/47	
Arkansas	1/1/48	
California	No official action	No provision in California Law for adoption of Statistical plans.
Colorado	1/1/48	
Connecticut	1/1/48	
Delaware	1/1/48	
D. of C.	1/1/49	For Allied Lines except Extended Coverage Endorsement, Windstorm and Hail and Flood.
Florida	1/1/47	
Georgia	1/1/48	
Hawaii	1/1/49	
Idaho	No official action	
Illinois	1/1/47	
Indiana	No official action	
Iowa	7/1/48	
Kansas	1/1/48	
Kentucky	1/1/48	
Louisiana	1/1/48	
Maine	1/1/48	
Maryland	1/1/47	
Massachusetts	1/1/48	
Michigan	1/1/47	
Minnesota	1/1/48	
Mississippi	No official action	
Missouri	1/1/48	
Montana	No official action	
Nebraska	1/1/48	
Nevada	1/1/47	
New Hampshire	1/1/48	
New Jersey	1/1/47	
New Mexico	1/1/48	
New York	1/1/47	
North Carolina	1/1/47	
North Dakota	1/1/49	
Ohio	1/1/48	

State	*Effective Date*	*Remarks*
Oklahoma	1/1/48	
Oregon	1/1/48	
Pennsylvania	1/1/48	
Rhode Island	1/1/52	
South Carolina	1/1/48	
South Dakota	1/1/48	
Tennessee	1/1/48	
Texas	No official action	Experience reported to Texas Board of Commissioners under special classification system.
Utah	1/1/48	
Vermont	No official action	
Virginia	1/1/50	For fire sprinklered risks, special class rated business, and the Allied Lines.
Washington	1/1/49	
West Virginia	1/1/50	For Allied Lines only.
Wisconsin	1/1/49	With amendments increasing the number of occupancy classes.
Wyoming	1/1/47	

REVIEWS OF PUBLICATIONS

CLARENCE A. KULP, Book Review Editor

Hospitalization and Insurance Among Aged Persons. A Study Based on a Census Survey in March 1952. I. S. Falk and Agnes W. Brewster. Division of Research and Statistics, U. S. Department of Health, Education and Welfare, Social Security Administration, Washington, 1953. *Bureau Report* No. 18 Pp. 81 and 93. Tables unpaged.

The purpose of the investigation that underlies this Report is "to provide information on the prevalence of hospitalization insurance among persons 65 and over, on the utilization of hospitals by persons in these ages, and on the source and methods used in paying hospital bills." The basic data are derived from the answers to a special series of questions added to the regular March 1952 Current Population Survey of the U. S. Census. The result is by far the most detailed picture we have yet had of one important aspect of old age security. The Report does not, and does not pretend to give, a complete picture of disability or of disability insurance resources of old people. Concentration on a relatively narrow target however permits a degree of detail, of elaboration and comparison, that in our current state of almost complete ignorance in this area is far more valuable.

The survey sample of March 1952 covered 75,000 persons, of which there were "about 6,000 in the ages 65 or over." (Query: why "about"?) When any member of the family interviewed was identified as 65 years or older a series of 4 special questions were asked, whenever possible from the aged person himself:

1. "Was so and so a patient in a hospital any time during 1951?"
2. "How many days altogether was so and so in the hospital in 1951?"
3. "What is the name of the hospital?"
4. "How was the hospital bill taken care of?"

Hospitalization in mental and tuberculosis and penal institutions, and stays in nursing homes are excluded.

Some of the limitations of the study are inherent in any study by sample. Others derive from the method of questioning. Whatever its merits, the household personal survey requires restriction to very few questions (particularly in this instance where the questions were in addition to a considerable list on employment and unemployment), and memory, even about one's own affairs, is proverbially unreliable. Even had there been opportunity for many more detailed questions it is hard to see how it would be practicable to devise meaningful questions from which to derive materials for qualitative conclusions, as on "the precise scope of the insurance owned or of the kind and amount of benefits provided." Likewise no attempt was made to learn the nature of illness leading to hospitalization, nor — since it happens that the March 1952 schedule did not include the relevant questions — was it possible to develop direct information on marital status and household relationship of the old person, both presumably major factors influencing hospitalization. One of a different nature results from the fact that many old persons who received hospital care in 1951 were no longer living in March 1952; data are therefore adjusted to include the experience of decedents.

All these limitations, and others, are admitted by the authors and whenever possible, as in the last example, adjustments have been made and methods of adjustment described.

Chapter VIII, of only 8 pages, presents a summary statement of the principal factual conclusions of the authors and of the implications they see in the facts for those concerned with planning for hospitalization insurance for the aged. Some of the most significant conclusions of fact follow; these will be most meaningful in sub-categories classified by age, sex, residence, employment status and the like:

> 1. Hospital admission rates per 100 persons are generally lower for persons 65 and over than for the population as a whole. Their average stay however is more than twice as long, with the net result that the old require over 80 per cent more days of hospital care per person than does the whole population.
>
> While the hospital admission rate for old people is lower than has generally been assumed, hospital utilization rates — days per 100 old persons — shown by the survey fall between the extremes for those of the most nearly comparable insurance plans (Table B). Comparisons of this sort have limited significance because of the special factors of selection that condition insurance experience. Utilization rates are given also for OASI and old age assistance beneficiaries.
>
> 2. As does the entire population, most hospitalized old persons require relatively short stays: 83 per cent receive less than 31 days each. But the 7 per cent who receive 60 days or more account for 40 per cent of all hospital days; the two per cent who receive 90 days or more account for 26 per cent of total hospital days.
>
> 3. Twenty-six per cent of the non-institutional old population of the U.S. report ownership of some kind of hospitalization insurance. Accident-only and other limited policies are meant to be excluded but there is some evidence of over-reporting. Even so, the

authors point out this is less than one-half the rate of insurance ownership for the population under 65.

Insured persons have higher hospital admission rates, but combined with shorter average stays, considerably lower hospital utilization rates than non-insured: 151 days per 100 persons compared with 170. Since experience for insured persons is conditioned by such selection factors as a relatively high proportion of white persons and employables and of — relatively — low ages, this generalization must be considered in connection with subclassifications by color, sex, age and employment status. The data naturally give no clue to the extent of over-use resulting from insurance ownership.

4. Three-fourths of hospitalized old persons use a single source or method of meeting bills of the 5 available (patient or spouse, relatives, hospitalization insurance, care without charge to patient, other); one-fourth use more than one source. In the whole group 38 per cent paid their own bills, 14 per cent received hospital care without charge, 13 paid through insurance alone; 11 per cent had their bills paid through relatives and others; the remaining 24 per cent used two or more sources.

5. Among *insured* persons the distribution by method or source of payment was different. Insurance takes care of 36 per cent of insured persons. Insurance was supplemented for another 53 per cent of insured persons by other methods or sources.

6. Even allowing for under-reporting in earlier surveys there appears to be an up-trend in hospitalization of old people, perhaps by as much as a third. Still the authors conclude on the basis of comparison of admission rates for insured and non-insured groups, coupled with an assumption of no abuse of hospital privileges by the former, that as a group "older persons are not receiving the amount of hospital care they need." Disability insurance underwriters will particularly question the second half of this argument.

To insurance people the implications discovered by the authors will be at least as interesting as their conclusions of fact. Of these the most challenging are:

1. The 26 per cent of old persons with insurance ownership reported here is considerably higher than reported on other estimates, which have run from 10 to 20 per cent. The authors find in this no evidence of trend but of the importance of concentrating on the the three-quarters who have no insurance protection.

2. No direct evidence can be gleaned from the data on insurance adequacy but the large proportion of insured persons who have had to turn to sources other than insurance is very suggestive.

3. Insurance for the old providing 30 days of benefit, assuming that the fact of insurance itself would not increase hospital use — another major assumption of the authors — would protect at the outside no more than 85 per cent of hospitalized persons. The authors have no suggestion of the best way in which the 15 per cent unprotected could be treated except to say that "insurance for the aged should if possible be achieved through contracts that are 'paid-up' before age 65 or retirement."

This is an extremely interesting and stimulating research. Whatever their qualifications of the research method, or of the resulting "facts" or implications, every accident and health insurance statistician, actuary and executive should carefully study this Report including its Appendices. It has all the earmarks of a carefully planned, carefully executed research study. It adds an important chapter to our knowledge of disability and disability insurance.

C. A. Kulp

Footprints of Assurance. Alvin E. Bulau. The Macmillan Company, New York, 1953. Pp. xiii, 319.

Mr. Bulau is a signevierist, a collector of fire marks. And a fire mark is a sign placed on a building to indicate what insurer insures it against loss by fire.

This book is primarily a catalog of the fire marks used in the United States and other countries, each listed with the name of the insurer; specifications of size, material, and conformation; and, in some cases, indications of rarity. These are the "footprints."

Each group of marks follows an introduction which presents, briefly, for their period, a statement of the general history of the country, of the fire-insurance business, and of the marks themselves.

The volume is splendidly produced, the illustrations are clearcut, and the commentary interesting and in point.

Ralph H. Blanchard

PUBLICATIONS RECEIVED

Fire Insurance Inspection and Underwriting. Lincoln, Babcock, Tisdale. 7th edition. Spectator, Philadelphia. pp xviii, 1338.

Property and Casualty Insurance. Gordin. Rough Notes, Indianapolis, pp 529.

OBITUARY

JOHN A. COPELAND, SR.

1883 — 1953

John A. Copeland, Sr., Consulting Actuary of Atlanta, Georgia, died suddenly June 12, 1953 of cerebral hemorrhage. He was an Associate of the Society of Actuaries, a Charter Member and Associate of the American Institute of Actuaries, a Charter Member and Fellow of the Casualty Actuarial Society, Charter Member of the Conference of Actuaries in Public Practice, Member of the Permanent Committee of the International Congress of Actuaries and a member of the Southeastern Actuaries Club.

Mr. Copeland was born December 26, 1883, at La Fayette, Georgia. He received his A.B. degree from the University of Georgia in 1905. Immediately following his graduation he took up actuarial work and was at various times connected with the State Mutual Insurance Company, Rome, Georgia, the Georgia Casualty Company, Macon, Georgia, and others. In 1910 he became the first Deputy Insurance Commissioner of the State of Georgia and remained there until he established his consulting business in 1912, doing business under his own name until the early twenties, as Copeland and Cothran for several years during the twenties and as John A. Copeland and Son since 1936. His publications include "Tables for Sub-Standard Risks, Copeland and Cothran, 1925" and "Various Tables A. M. (5), Copeland and Cothran, 1927."

Surviving are his wife, Susie McKenzie Copeland, a son, two daughters and five grandchildren, as well as two brothers and two sisters. He was a 32nd degree Mason, a Shriner and a member of the Kappa Sigma Fraternity.

His many friends, who have had the privilege of working with him closely, will remember him for his keenness of mind, his fine sense of humor and above all for the most important role he has played, for more than forty years, as advisor to young growing life insurance companies throughout the South, many of which today rank among the leading companies in the United States.

OBITUARY

LEMUEL G. HODGKINS

1877—1951

Lemuel G. Hodgkins died on December 26, 1951, at his winter home in Clearwater, Florida.

Mr. Hodgkins had been a Fellow of the Society since October 22, 1915.

Before joining the Massachusetts Protective Association, Inc., of Worcester, Massachusetts, Mr. Hodgkins had served as Deputy Insurance Commissioner of the Commonwealth of Massachusetts, as secretary and manager of the Massachusetts Rating and Inspection Bureau, and as secretary and manager of the National Automobile Conference.

For twenty-four years, until his retirement in 1942, he had been an officer and director of the Massachusetts Protective Association, Inc. He also served as an officer and director of the Paul Revere Life Insurance Company.

Mr. Hodgkins impressed his friends and associates with his qualities of fairness, warmth and human understanding. In discharging the very heavy business responsibilities which fell to his lot, he exhibited sound judgment and integrity, and his actions and decisions were characterized by fairness, firmness and patience.

His friendly manner and his loyalty to others won him the friendship and respect of all those who were associated with him in business or in community life.

OBITUARY

FRANK RUSSELL MULLANEY

1888—1953

Frank Russell Mullaney, a charter member of Casualty Actuarial Society passed away suddenly, on January 22, 1953, at his home in West Newton, Massachusetts. Born July 6, 1888 in Jersey City, New Jersey, he attended the public schools there, New York Preparatory School and Pace College. He entered the casualty insurance business in 1914 with the Fidelity and Casualty Company. In 1917, he left the Home Office of that company to come to Boston as Actuary of the American Mutual Liability Insurance Company, thus beginning an association with the company which continued for all the years of his life thereafter. He was elected Assistant Secretary of American Mutual in 1919, Secretary in 1927, Vice-President and Secretary in 1936, and Financial Vice-President and Secretary in 1950. He was also an officer of American Mutual's two affiliated companies, becoming Secretary of American Policyholders' Insurance Company in 1929, Vice-President and Secretary in 1937, and Financial Vice-President and Secretary in 1950; Vice-President of Allied American Mutual Fire Insurance Company in 1943, Vice-President and Secretary in 1948, and Financial Vice-President and Secretary in 1950.

The period from 1917 into the mid-twenties was one in which intercompany ratemaking organizations for workmen's compensation insurance were being formed. The present National Council on Compensation Insurance came into being and the basic patterns of workmen's compensation insurance ratemaking were being laid down. He participated actively in these events as a representative of his company.

A keen interest in and an understanding of the problems involved in the conduct of intercompany ratemaking organizations and the development of rating systems in the casualty insurance business were always characteristic of him even after he had become less active personally in this field and had begun to devote himself primarily to administrative matters in his own company.

In church and community affairs he gave deeds as well as words. He was a past president of the West Newton Men's Club. For many years he had been a member of the Masonic Order. His spiritual faith was strong and plain to all about him. It sustained him always. In him there was no fear. Upright, wise and experienced in judgment, Frank Mullaney held the respect of his associates; and being the man he was, he had their strong affection. Respect and affection are with his memory.

He is survived by his widow and two sisters.

OBITUARY

ROBERT V. SINNOTT

1900—1952

Robert V. Sinnott died at the Springfield Hospital in Springfield, Massachusetts on December 15, 1952, following a brief illness.

Mr. Sinnott was born in Hartford, Connecticut on May 5, 1900. He was educated in the Hartford public schools and was graduated from Trinity College in 1923 with a B.S. degree. For two years following graduation, he taught mathematics at Hartford High School and subsequently became associated with the Edward Balf Company, and later with the Pratt & Whitney Division of Niles-Bement-Pond Company. He joined the Hartford Accident and Indemnity Company in 1927 as an underwriter in the Home Office Liability Department. In 1935 he was transferred to the Rating and Research Department to assume supervision of research and actuarial work in connection with the casualty underwriting activities of the company. In 1944 he was elected Assistant Secretary and Secretary in 1950.

As a Fellow of the Casualty Actuarial Society, he served on the Examination Committee from 1936 to 1942 and at some time during that period he acted as chairman of both Fellowship and Associate Examination Committees, and as General Chairman the last year. He also served as a member of the Council for a number of years. Mr. Sinnott participated in the activities of the Actuarial Committees of the National Council on Workmen's Compensation and the National Bureau of Casualty Underwriters, particularly when retrospective rating and other rating formulae now in use were being developed. He was also very active in promoting the idea of retrospective rating among large producers. He was regarded with affection and respect by his associates and his loss will be keenly felt.

Married to Angeline Rogers, Mr. Sinnott is survived by his wife, a son, John R., a student at Loomis School in Windsor, three sisters and a brother. At the time of his death Mr. Sinnott was a resident of Windsor, Connecticut.

MINUTES

ABSTRACT FROM THE MINUTES OF THE MEETING

May 21 and 22, 1953

The semi-annual meeting of the Society was held at the Edgewater Beach Hotel, Chicago, Illinois on Thursday and Friday, May 21 and 22, 1953.

President Carlson called the meeting to order at 2. P.M. on May 21st and the roll was called showing the following 43 Fellows and 20 Associates present:

FELLOWS

ALLEN, E. S.
BAILEY, A. L.
BERKELEY, E. T.
BRINDISE, R. S.
BURHOP, W. H.
CARLSON, T. O.
COATES, C. S.
CRITCHLEY, D.
CROUSE, C. W.
EDWARDS, J.
FONDILLER, R.
GRAHAM, C. M.
GREENE, W. W.
HARWAYNE, F.
HEWITT, C. C., JR.
HOPE, F. J.
HUGHEY, M. S.
JOHNSON, R. A.
LANGE, J. R.
LINDER, J.
LIVINGSTON, G. R.
LONGLEY-COOK, L. H.
MASTERSON, N. E.
MATTHEWS, A. N.
MAYCRINK, E. C.
MCCONNELL, M. H.
MILLS, J. A.
PERRYMAN, F. S.
PETZ, E. F., JR.
PRUITT, D. M.
RODERMUND, M.
ROSENBERG, N.
ROWELL, J. H.
SALZMANN, R. E.
SCHLOSS, H. W.
SKELDING, A. Z.
SKILLINGS, E. S.
SMITH, S. E.
ST. JOHN, J. B.
UHTHOFF, D. R.
WIEDER, J. W., JR.
WITTICK, H. E.
WOLFRUM, R. J.

ASSOCIATES

BEVAN, J. R.
BLACK, N. C.
BOYAJIAN, J. H.
DANIEL, C. M.
FRANKLIN, N. M.
GIBSON, J. P., JR.
KIRK, C. L.
LINO, R.
MCIVER, R. A.
MURRIN, T. E.
NICHOLSON, E.
RESONY, A. V.
SCAMMON, L. W.
SEVILLA, E. S.
SIMON, L. J.
STOKE, K.
SULLIVAN, W. F.
TRIST, J. A.
WOOD, D. M.
WOOD, D. M., JR.

By invitation, a number of officials of Casualty and Fire Insurance Companies and other insurance organizations were present.

The reading of the minutes of the meeting held November, 1952 was dispensed with by motion.

President Carlson delivered his Presidential Address. There followed the presentation of the paper in these *Proceedings* and the discussions of papers presented at the November 1952 meeting.

Vice-President Linder presided at the informal discussion upon the following subject:

Compulsory Automobile Insurance
(1) From standpoint of public and insurance industry
(2) Probable course of losses and expenses
(3) Ratemaking problems

Recess was then declared until the following day.

An Informal Dinner was held on the evening of May 21st, the dinner group was addressed by Mr. Chase M. Smith, general counsel of the Lumbermens Mutual Casualty Company.

On May 22nd, the meeting was called to order by President Carlson at 10 A.M. The Secretary-Treasurer (Richard Fondiller) read the report of the Council and upon motion it was adopted by the Society.

Vice-President Linder then presided at the informal discussion upon the following subjects:

A. Loss Trends and Possible Measurement Thereof for Ratemaking Purposes.
(1) Workmen's Compensation.
(2) Automobile.

B. Multiple Peril Policy Forms
(1) Desirability from standpoint of "large" and "small" buyers.
(2) Rating Problem.
(3) Statistical Problem.

C. Progress to Date Under Uniform Accounting.
(1) Loss and Loss Expense Reserves.
(2) Expenses.
(3) Desirable Changes in Current Annual Statement Blank.

Upon motion, the meeting adjourned at 12:40 P.M.

ABSTRACT FROM THE MINUTES OF THE MEETING

November 19 and 20, 1953

The annual meeting of the Casualty Actuarial Society was held at the Hotel Biltmore, New York, on Thursday and Friday, November 19 and 20, 1953.

President Carlson called the meeting to order on November 19th at 2 P.M., the roll was called, showing the following 62 Fellows and 35 Associates present:

FELLOWS

AINLEY	HAUGH	MOORE
ALLEN	HAZAM	MUNTERICH
AULT	HEWITT	OBERHAUS
BARBER	HOPE	PERRYMAN
BATHO	HUGHEY	PRUITT
BERKELEY	JACKSON, H. H.	RODERMUND
BEVAN	JOHNSON	ROWELL
BROWN	KOLE	RUCHLIS
CAHILL	KORMES	SALZMANN
CARLSON	KULP	SCHLOSS
CLARKE	LACROIX	SHAPIRO
CORCORAN	LESLIE, JR.	SILVERMAN
CRITCHLEY	LINDER	SKELDING
DOREMUS	LIVINGSTON	SKILLINGS
ELLIOTT	LONGLEY-COOK	SMICK
ELSTON	MARSHALL	SMITH
FONDILLER	MASTERSON	TRIST
GRAHAM, C. M.	MATTHEWS	VALERIUS
GRAVES	MAYCRINK	VERGANO
HALEY	MCCONNELL	WIEDER
HARWAYNE		WOLFROM

ASSOCIATES

ACKER	GILLAM	MAYERSON
BARKER	GROSSMAN	MENZEL
BENNETT	HART, JR.	MURRIN
BITTEL	HART	PERKINS
BONDY	HURLEY	POTOFSKY
BOYAJIAN	JOHE	RESONY
CONTE	KALLOP	SCAMMON
EGER	KATZ	SCHWARTZ
FAIRBANKS	LINO	SIMON
FOSTER	LISCORD	STOKE
FOWLER	MACKEEN	THOMAS
FURNIVALL		UHL

By invitation, a number of officials of casualty and fire insurance companies and insurance organizations were present.

An off the record panel discussion was held on "The Evaluation of the Function and Performance of the Actuarial Profession in the Casualty and Fire Insurance Fields." The panel was selected to represent the views of a college professor of insurance, a company executive, an authority on insurance law and an insurance supervisory official. The panel members were Ralph H. Blanchard, Professor of Insurance of Columbia University; Ellis H. Carson, President of the National Surety Corporation; James B. Donovan of the law firm of Watters & Donovan; and George H. Kline, Deputy Superintendent of the New York Insurance Department.

Recess was then declared until the following day.

Members and guests of the Casualty Actuarial Society turned out in record number in the evening to attend a dinner in honor of Richard Fondiller who had completed 35 years of voluntary service in the post of secretary-treasurer of the Society. Mr. Fondiller had announced earlier in the year that he would not be a candidate for re-election, and his successor was chosen on the following day. The dinner was a highpoint in the program for the first day of the Society's two-day thirty-ninth annual meeting at the Hotel Biltmore.

To Mr. Fondiller, who is president of the firm of Woodward and Fondiller consulting actuaries, the Society's tribute was a surprise. Past President Winfield W. Greene, president of W. W. Greene, Inc., consulting actuaries, acted as toastmaster and Past President William Leslie, general manager of the National Bureau of Casualty Underwriters, was the principal speaker. Every past president of the Society either attended the dinner or sent a message of tribute. In appreciation of his service, the Society presented Mr. Fondiller with an engrossed scroll bound in finely-tooled leather and a gift of luggage.

On November 20th the meeting was called to order at 10:20 A.M.

Mr. Carlson read his presidential address.

The reading of the minutes of the meeting held May 21 and 22, 1953 was dispensed with by motion.

The Secretary-Treasurer (Richard Fondiller) read the report of the Council and upon motion it was adopted by the Society. John R. Bevan, Clyde H. Graves, James B. Haley and John A. W. Trist had passed the examinations and had been admitted as Fellows: a diploma was presented to each by the President. Norman J. Bennett, Martin Bondy, Joseph P. Conte, Geoffrey Crofts, William S. Gillam, John Harack, Ward V. B. Hart, Jr., Glenn O. Head, Roy H. Kallop, Phillip B. Katz, Richard J. Mills, William J. Perkins, Owen D. Richmond and James W. Thomas had passed the examinations and had been admitted as Associates.

The Society had become an institutional member of the Insurance Society of New York.

Upon the recommendation of the Council, Harold E. Curry, Arthur S. Kuenkler, and Hubert W. Yount were unanimously elected as Fellows by the Society under the Constitution, Article III.

The President announced the deaths, during the last year, of four Fellows, John A. Copeland, Lemuel G. Hodgkins, Frank R. Mullaney and Robert V. Sinnott. Obituary notices appear in this number of the *Proceedings*.

The Auditing Committee (Howard G. Crane, Chairman) reported that the books of the Secretary-Treasurer had been audited and his accounts verified.

The report of the Secretary-Treasurer was read and accepted. The report on finances follows:

CASUALTY ACTUARIAL SOCIETY

Cash Receipts and Disbursements from October 1, 1952 to September 30, 1953

Income			Disbursements	
On deposit in Marine Midland on October 1, 1952		$ 3,605.01	Printing & Stationery	$ 4,368.09
Members Dues	$4,220.00		Postage, Tel., Express, etc.	222.29
Sale of Proceedings	1,855.00		Secretarial Work	633.75
Examination Fees	902.18		Examination Expense	601.55
Luncheons & Dinners	1,548.00		Luncheons & Dinners	2,009.11
Michelbacher Fund	541.95		Storage of Proceedings	33.52
Interest on Bonds	125.00		Insurance	61.50
Sale—Reprints:			Library Fund	130.76
Tarbell-Comb. Fire & Cas. Annual Statement Blank	92.26		Subscription to International Congress of Actuaries	25.00
Other Reprints	15.00		Miscellaneous	18.55
Return of Surety Bond Premium	12.50			
Foreign Exchange	-.20	9,311.69	Total	$ 8,104.12
			On deposit Sept. 30, 1953, in Marine Midland Trust Co.	4,812.58
Total		$12,916.70	Total	$12,916.70

Assets			Liabilities	
Cash in Bank	$4,812.58		Michelbacher Fund 9/30/53	$6,052.10
U.S. Savings Bonds	5,000.00		Surplus	3,760.48
		$ 9,812.58	Total Liabilities & Surplus	$9,812.58

The Examination Committee (John W. Wieder, Jr., General Chairman) submitted a report of which the following is a summary:

1953 — EXAMINATIONS — SUCCESSFUL CANDIDATES

The following is a list of those who passed the examinations held by the Society on May 12 and 13, 1953:

ASSOCIATE EXAMINATIONS

PART I:	W. P. Amlie	J. B. Franklin, Jr. (Sec. 2)*	S. S. Makgill
	R. A. Berg	J. Gottesfeld	L. F. Mathwick
	O. F. Bernath	C. Graveline	J. M. Mortensen
	J. R. Berquist	W. V. B. Hart, Jr.	A. G. Royer
	J. J. Bond	E. E. Jacks	L. R. Schiff
	R. J. Callahan, Jr.	O. R. Klein, Jr.	W. Steele
	H. M. Church	J. A. Lauer	E. J. Strug
	W. D. Coates	A. S. Leight	C. Trudel
	G. E. R. Davey	C. A. Lewis	E. E. Ward
	R. Dufort	J. A. MacDougall, Jr.	J. H. Williams
	G. R. Farley		B. Wright
PART II:	J. R. Berquist	C. Graveline	S. Perlstein
	J. J. Bond	R. G. Hansen	H. J. Phillips, Jr.
	M. Bondy	E. E. Jacks	L. R. Schiff
	R. J. Callahan, Jr.	R. R. Jensen	W. Steele
	H. M. Church	P. B. Katz	A. Sternhell
	G. E. R. Davey	O. R. Klein, Jr.	C. Thomas
	R. Dufort	C. A. Lewis	C. Trudel
	K. Elstyne	K. McDonald	R. Vázquez Cruz
	G. R. Farley	G. E. McLean	E. E. Ward
	J. E. Faust, Jr.	J. A. MacDougall, Jr.	H. R. Wren
		S. S. Makgill	
PART III:	R. Dufort	C. Graveline	M. Mudry
	K. Elstyne	A. Hazelcorn	J. Schulman
	P. R. Flack	J. W. Huntley	C. Trudel
	A. C. Gill	K. McDonald	D. G. Williams
	W. S. Gillam	J. A. MacDougall, Jr.	B. Wright
		J. M. Mortensen	
PART IV:	N. J. Bennett	J. Harack	R. J. Mills
	M. Bondy	W. V. B. Hart, Jr.	W. J. Perkins
	J. P. Conte	G. O. Head	O. D. Richmond
	G. Crofts	P. B. Kallop	E. J. Strug
	M. R. Drobisch	P. B. Katz	J. W. Thomas
	K. F. Eaton		T. F. Tucker

*Other section of this Part credited to veterans by the Council under Rule 4(e).

FELLOWSHIP EXAMINATIONS

PART I:	C. M. Daniel A. V. Fairbanks	R. B. Foster	P. S. Liscord R. B. Pennycook
PART II:	G. M. Barker T. W. Fowler	J. B. Haley R. L. Hurley	T. E. Murrin L. J. Simon
PART III:	J. R. Bevan C. H. Graves		L. J. Simon J. A. W. Trist
PART IV:	G. M. Barker J. R. Bevan	J. H. Boyajian T. W. Fowler	J. B. Haley J. A. W. Trist

The Secretary-Treasurer announced that the Council had elected the following officers:

Editor ....Emma C. Maycrink
Librarian ....Gilbert R. Livingston
Chairman, Examination Committee ..John W. Wieder, Jr.

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

President ....Seymour E. Smith
Vice-President ....John A. Mills
Vice-President ....Dudley Pruitt
Secretary-Treasurer................Albert Z. Skelding
Editor ....Emma C. Maycrink
Librarian ....Gilbert R. Livingston
Chairman, Examination Committee ..John W. Wieder, Jr.

Members of the Council: (terms expire in 1956)

D. R. Uhthoff
N. M. Valerius
H. V. Williams

The papers appearing in this Volume were presented.

An educational discussion of electronic machine developments as they may effect insurance procedures was led by Dudley M. Pruitt, Chairman of the Society's Research Committee. Other members of the Research Committee participated in the discussion.

Recess was taken for lunch at the Hotel until 2:15 P.M.

An off-the-record panel discussion on the "Handling of Expenses in Ratemaking" was held at the afternoon session. Members of the panel were James M. Cahill, Frederick W. Doremus, Clyde H. Graves and L. H. Longley-Cook, all Fellows of the Society.

Upon motion, the meeting adjourned at 4:30 P.M.

1953 EXAMINATIONS OF THE SOCIETY

EXAMINATION FOR ENROLLMENT AS ASSOCIATE

PART I

MAY 12, 1953 TIME 9:30 TO 12:30 O'CLOCK

1. Given the following distribution, calculate the mean, mode, median, and standard deviation.

Variate	27.5	32.5	37.5	42.5	47.5	52.5
Frequency	1	2	4	10	21	53
Variate	57.5	62.5	67.5	72.5	77.5	
Frequency	126	163	35	6	1	

2. In the following table

X = scores of ten students on a standardized test in college algebra

Y = semester grades of the same students in college algebra

X	54	56	64	33	57	90	63	47	92	34
Y	67	68	74	48	69	91	74	52	90	47

(a) Find the least squares line for these data.

(b) Estimate the semester grade of a student who made 60 on the standardized test.

3. (a) If ${}_S C_N$ distinct samples of N variates are drawn from a population of S variates show that $M_s = M_x$ and $\sigma_s = \sigma_x \sqrt{\dfrac{S-N}{N(S-1)}}$ where M_s = the mean of the ${}_S C_N$ sample means, M_x = the mean of the S variates, and σ_s is the standard deviation of the distribution of sample means and σ_x is the standard deviation of the distribution of the S variates.

(b) Prove that $\sigma_{x-y} = \sqrt{\sigma_x^2 + \sigma_y^2}$ where the two distributions x and y are independent.

4. Assuming that the distribution of the lengths of telephone calls can be represented by the normal curve and that the average length is found to be 500 seconds and the standard deviation 150 seconds, find

(a) the probability that a call will be between 500 and 600 seconds in length and

(b) the probability that the length of a call will differ numerically from the mean by over 300 seconds.

$$\text{Given } \phi(1) = .2420 \qquad A\phi]_0^1 = .3413 \qquad A\phi]_{2/3}^2 = .2287$$

$$\phi(2) = .0540$$

$$\phi(3) = .0004 \qquad A\phi]_0^{2/3} = .2486$$

5. (a) Arrange the following in order of relative magnitude, largest first:

$$a_{\overline{n}|},\ \ddot{a}_{\overline{n}|},\ s_{\overline{n}|},\ \ddot{s}_{\overline{n}|},\ a_{\overline{n}|}^{(12)}\ \ddot{a}_{\overline{n}|}^{(12)}$$

(b) Given an annuity of $1.00 per year payable in p equal installments at equal intervals during the year, for n years, with effective interest rate i converted annually, derive, with explanation, the following formula for the amount of such annuity:

$$s_{\overline{n}|}^{(p)} = \frac{(1+i)^n - 1}{p[(1+i)^{1/p} - 1]}$$

6. (a) A invests $100 and receives $6.00 a year dividends for 15 years, when the business fails and he loses 90% of his original investment. B invests $100 at the same time and receives no dividends for 15 years, then $6.00 a year for 5 years, when he sells his investment for a price P. What amount should P be, in order that we can say that at the time of original investment they made equivalent choices? Assume i = 5%.

$$\text{Given } v^5 = .78$$

$$v^{15} = .48$$

(b) A building just completed cost $300,000. It is estimated that $1,000 will be required at the end of each year for repairs, and that every ten years, including the 40th year, there must be renovation to the extent of $12,000 (in addition to the $1,000 repairs) and that with such care the building will have a service life of 40 years with a salvage value of $100,000. What equal annual sum should be available at the end of each year to cover immediate costs and build up a sinking fund, at 5% interest, for future renovation and replacement costs?

$$\text{Given } \frac{1}{a_{\overline{10}|}} = .1295$$

$$\frac{1}{a_{\overline{40}|}} = .0583$$

7. (a) Develop a formula in terms of i, for the annual payments under an annuity to run for 10 years equal in present value to a perpetuity of $1.00 paid at the end of each two years, with interest at effective rate i.

   (b) A city wishes to establish a fund which will provide $10,000 for the immediate construction of a certain project plus additional sums of $10,000 at 10 year intervals for replacement, to continue indefinitely. If they could be guaranteed an interest rate of 3%, what amount must be established in the fund to cover all costs?

$$\text{Given } (1.03)^{10} = 1.344$$

8. Serial bonds of $5,000 are issued January 1, 1950 with 5% coupons payable annually and maturing in 10 equal annual installments, to net the purchaser an effective rate of 6%. Determine the purchase price and prepare a schedule to show the progress in the redemption, and in the accumulation of discount until just prior to January 1, 1953.

$$\text{Given } a_{\overline{10}|} \text{ at } 6\% = 7.360087$$

PART II

1. (a) Find the maximum, minimum, and inflection points and trace the curve.

$$y = \frac{8x}{1+x^2}$$

   (b) A powerhouse stands on one bank of a river 1½ miles wide A factory stands on the other bank of the river 5 miles downstream. What is the most economical way for laying a connecting cable if the cost of the cable is $400 per mile on land and $500 per mile in water? What is the minimum cost?

2. The surface of water in a conical tank is falling at the rate of 0.5 inches per minute when it is 7 feet above the vertex. The tank is 8 feet high, its top is 12 feet in diameter and its axis is vertical; find the rate at which the volume of water in the tank is decreasing.

3. (a) Find the area enclosed by the parabolas

$$y^2 = x \quad \text{and} \quad x^2 = y$$

(b) A circular plate of radius a and thickness b is cut by a plane which passes through a diameter of the lower base and just touches the upper base; find the volume of the wedge cut off by the plane.

4. (a) Evaluate

1. $\int e^{\cos 2x} \sin 2x \, dx$

2. $\int \frac{x^2 - x}{x+1} dx$

3. $\int \tan^4 x dx$

(b) Expand sin x into an infinite power series in x. For what values of x does this series converge.

5. (a) Represent the function $x^4-12x^3+42x^2-30x+9$ and its successive differences in factorial notation.

(b) Find $U_{44:51}$ given

$U_{40:50} = 10.894$	$U_{40:55} = 9.796$	$U_{40:60} = 8.553$
$U_{45:50} = 10.591$	$U_{45:55} = 9.583$	
$U_{50:50} = 10.059$		

6. (a) Find the value of x for which y is 600 given the following

x	2	3	4	5	6
y	1,231	868	519	182	−145

(b) Sum to n terms the series whose x^{th} term is

$$\frac{1}{(x+2)(x+3)(x+4)}$$

7. (a) Find by La Grange's formula the value of U_8 given

$$U_0 = 522 \qquad U_5 = 399 \qquad U_{10} = 262 \qquad U_{15} = 113$$

(b) Find U_6 by means of Bessel's formula given

$$U_0 = 427$$
$$U_4 = 581$$
$$U_8 = 772$$
$$U_{12} = 996$$

8. (a) Derive the "three eighths" rule for approximate integration when four consecutive points are given.

(b) Prove that

$$\Delta^n 0^m = n\,(\Delta^{n-1} 0^{m-1} + \Delta^n 0^{m-1})$$

PART III

1. (a) In a certain town the post office has four telegraph boys who take it in turn to deliver telegrams. If a resident in the town receives a telegram on n separate occasions, what is the chance that the telegrams will be delivered by at least three of the telegraph boys? (i.e. that at least three of the boys will each deliver at least one telegram).

(b) P makes a bet with Q of $18 to $153 that three races will be won by the three horses, A, B, C, against which the betting is 3 to 2, 4 to 1, and 3 to 1 respectively. The first race having been won by A, and it being known that the second race was won either by B, or by a horse D against which betting was 3 to 1, find the value of P's expectation at this point.

2. (a) A bag contains $\frac{n\,(n+1)}{2}$ counters, of which one is marked 1, two are marked 4, three are marked 9, and so on; a person puts in his hand and draws out a counter at random, and is to receive as many dollars as the number marked on it; find the value of his expectation.

(b) If m gifts are distributed among A men and B women, show that the chance that the number of gifts received by the men is odd is equal to:

$$\frac{(B+A)^m - (B-A)^m}{2\,(B+A)^m}$$

3. (a) The sum of two positive quantities is constant and equal to 2n. Find the chance that the product of the two quantities is not less than $\frac{8}{9}$ their greatest product.

(b) Out of 3n consecutive integers, three are selected at random. Find the chance that their sum is divisible by 3.

4. A bag contains 3 black balls and an unknown number, not greater than 6, of white balls; three are drawn successively and not replaced, and all are found to be white. What is the chance that a black ball will be drawn next?

5. (a) Explain, in words, what is meant by the following as they are commonly used in connection with mortality tables:

(1) radix (2) l_x (3) d_x (4) q_x (5) ${}_np_x$ (6) ${}_{m|n}q_x$

(b) Write down the symbols for the following, and express their equivalents in terms from 5 (a) above, using in addition any necessary expressions for interest or discount, as respects a persons age x:

1. Curtate expectation of life.
2. Present value of Pure Endowment of $1.00 payable after n years.
3. Present value of Whole Life Annuity Immediate of $1.00.
4. Net Single Premium for Whole Life Insurance of $1.00.

6. (a) If $(I\ddot{a})_x^{(m)}$ denotes the present value of an increasing life annuity due, payable m times per year, with annual rent of one dollar in the first year, two dollars in the second year, three dollars in the third year, and so on for the life of an individual now aged (x), show that

$$(I\ddot{a})_x^{(m)} = (I\ddot{a})_x - \frac{m-1}{2m} \cdot \ddot{a}_x \text{ approximately}$$

(b) A child's endowment policy issued at age 1 provides for a death benefit of $100 in event of death the first year, $200 in event of death the second year, and so on, increasing by $100 per year until a maximum of $1,000 is reached. The policy matures at age 21 with an endowment of $1,000.

Derive an expression for the net annual premium P payable for twenty years, in terms of commutation symbols. Also derive an expression in terms of P and commutation symbols for the revised net annual premium that would be payable if the policy further provided, in the event of the death of the child during the twenty year period, for the return, without interest, of all net premium paid.

7. (a) Derive, with explanation, Fackler's Accumulation Formula for computing net level terminal reserves.

   (b) Assuming that a life insurance company set aside a modified reserve consisting of α in the first policy year and β in all renewal years, derive the formula for the difference between β and the net level premium P.

8. (a) Prove that

$$ {}_{n}E_{x|\overline{yz}} = {}_{n}E_{y} + {}_{n}E_{z} - {}_{n}E_{yz} - {}_{n}E_{xz} - {}_{n}E_{xy} + {}_{n}E_{xyz} $$

   (b) The New York Workmen's Compensation Act provides for benefits to widows and children, in the form of annuities based upon the average wages of the deceased, subject to a maximum of 66⅔% of average wage. Special Bulletin No. 222, published by the New York Workmen's Compensation Board contains tables for the present value (per \$100 Annual Wages) of the various benefits. The table for present value of award to the Second Youngest Child (Table V) is based upon the following formula:

$$ 30_{1}\,\bar{a}_{\overline{18-y_{2}}|} - 10_{1}\,\bar{a}_{x':\overline{18-y_{2}}|} - 3\tfrac{1}{3}\,{}_{2}\bar{a}_{x':\overline{18-y_{2}}|} $$

   Benefits are payable to children up to age 18.
   Explain in words, but without deriving any expressions, what is represented by each term in the above, and their relation to each other.

PART IV

NOTE: Answer any eight of the questions numbered 1 through 12 and any eight of the questions numbered 13 through 24.

1. Name and give a brief description of the coverage provided by four consequential loss (indirect damage) contracts written by fire insurance companies.

2. An eighty percent coinsurance clause is required on some fire policies. Describe the effect of this clause on policy coverage.

3. Describe the coverage provided by the personal property floater and discuss the important underwriting conditions or standards involved in writing this policy.

4. Name four perils insured against by the basic open cargo ocean marine policy while the goods in transport are waterborne.

5. Describe the provisions in the 1943 New York Standard form of fire insurance policy with regard to:

   (a) vacancy or unoccupancy
   (b) other insurance
   (c) uninsurable or excepted property

6. Name four of the exclusions in the standard automobile comprehensive physical damage policy.

7. Name the principal elements taken into consideration in determining the final premium when insuring plate glass.

8. Give a general description of the coverage provided by the mercantile open stock burglary policy.

9. Describe the classification of employees for the purpose of premium computation for the blanket position fidelity bond.

10. Explain the system used in applying classification rates for the Named Non-Owner Automobile Liability Insurance Policy.

11. Distinguish between the scope of coverage provided by a hospital professional liability policy and that provided by an owners', landlords' and tenants' policy written to insure the hospital.

12. In workmen's compensation insurance both premiums and losses are related to payrolls to a certain extent.

    (a) Describe this relationship.
    (b) All other things remaining the same a 25% increase in the general wage level would not produce a 25% increase in premium or losses overall. Outline the factors contained in the manual rules, the policy, and compensation acts which tend to prevent inflation of premium and losses in direct proportion to payrolls.

13. Rates for most casualty insurance lines are revised annually with the expectation of maintaining the ratio of losses to premium reasonably close to an expected loss ratio. Discuss the practicability of applying this approach in ratemaking for extended coverage insurance written in conjunction with the fire policy.
14. Discuss the individual risk characteristics which enter into the making of fire insurance rates.
15. Describe the classification system used by the National Board of Fire Underwriters in collecting premium and loss statistics for fire insurance.
16. Discuss the problems encountered in testing statistically fire insurance rates by individual classifications.
17. Fire insurance premiums are derived from rates that are applied uniformly to each hundred dollars of insurance purchased. Discuss the effect of monetary inflation on fire insurance premium and losses for those classes where a coinsurance clause is required.
18. Define "catastrophe" as used in fire insurance rate making and describe the provision made for it in the rate structure.
19. Assume that you have a single classification of casualty insurance for which a manual rate of $1.00 has been established for standard limits of coverage. This rate can be broken down into its component parts as follows:

Losses	$ .600
Acquisition	.150
Taxes	.030
Profit	.050
Claim Expense	.092
General Expense	.078
Total	1.000

The economic period is one of moderate inflation, and upon investigation you find that the base of exposure for this class is one which is not affected by economic inflation. A large and fully credible volume of experience indicates a pure premium of $.75. The indicated increase is due to increased average claim costs. Claim frequency has actually decreased.

(a) Using the "pure premium" ratemaking method, determine the new rate indicated by the experience and break it down into the component parts as above.

(b) Discuss the justification for the new values of each of the expense elements.

20. Describe the unique feature of Elevator Bodily Injury Liability ratemaking that distinguishes it from the procedure used for other general liability sub-lines. How does this affect the "permissible loss ratio"?

21. Outline the steps used by the National Council on Compensation Insurance to determine the overall change in rate level indicated in the annual rate revision procedure.

22. In workmen's compensation insurance ratemaking what is a "non-reviewed class"? How are the new rates selected for these classes? What procedures would you suggest to give the experience of these classes some effect in the new rates for these classifications?

23. In establishing rates and premiums for policies providing the type of group coverage required by the New York Temporary Disability Law, most carriers include in their considerations elements generally designated as follows:

Waiting Period
Female Exposure
Unemployment Disability Funds

(a) Define "Waiting Period" and explain its purpose and effect on rates.

(b) Define "Female Exposure" and explain why and how rates may be adjusted because of it.

(c) Define "Unemployment Disability Benefits" and state briefly why they must be considered in ratemaking.

24. Discuss the problems encountered in attempting to justify revised increased limits tables for automobile liability insurance on the basis of recent experience.

EXAMINATION FOR ENROLLMENT AS FELLOW

PART I

1. Considering only the economic theory of risk and insurance
   (a) How does insurance reduce the burden of risk?
   (b) Explain the position of insurance in the credit system.

2. Why should industrial organizations with greater financial resources than many insurance carriers seek insurance?

3. Why do the shares of many insurance carriers sell at discounts from their apparent real values?

4. (a) Discuss what determines the investment needs and investment policies of fire and casualty companies, and explain why they differ.

   (b) to what types of diversification must attention be given in properly balancing an investment portfolio?

5. (a) Distinguish between "waiver," "estoppel," and "election" as these operate in the insurance business.

   (b) Under an "elective" type of Compensation Act, in the event of employee injury, what recourse has the injured employee of an employer who has rejected the Act, and what penalties are incurred by the employer?

6. (a) There have been statements to the effect that the Robinson-Patman Act does and does not apply to the insurance business. Discuss the reasons for these divergent views.

   (b) Give five basic classifications of legal powers, other than rate regulatory provisions, enabling supervisory authorities to control financial condition of insurers.

7. (a) Give five reasons why insurance regulation may be said to be more important to the public interest than is regulation of most other industries.

   (b) What methods are evolving or being developed to minimize the disadvantages of non-uniformity in regulatory requirements and practices inherent in state supervision?

8. Describe briefly the "deviation" provision of the All-Industry Bill. Do you believe an individual member or subscriber company of a rating organization can deviate under this provision on a particular classification or territory? Discuss the reasons for your opinion.

PART II

NOTE: Answer any four of the questions numbered 1 through 6.

1. (a) In the Liability Experience Rating Plans in New York, a maximum loss amount per accident is set up for each risk size so that the incurred losses from one accident will not affect the individual risk more than thirty percentage points in the experience modification. For a risk which develops $40,000 of basic limits premium subject to experience rating, with a credibility of 80 per cent, what should such a maximum loss amount be in a state which allows 50 per cent of the premium for losses and allocated claim expenses?

   (b) For a risk being rated under the National Council Workmen's Compensation Experience Rating Plan, you are given the amounts of actual and expected losses, separated to primary and excess portions. The value of Z_p, primary credibility, and the value of Z_e, excess credibility, are given, instead of B and W values. Express the risk's modification factor in terms of primary actual and expected losses, excess actual and expected losses, primary credibility and excess credibility.

2. (a) Describe how the National Council Workmen's Compensation Experience Rating Plan and the New York Automobile Liability Experience Rating Plan take into account the higher loss level reflected in the current manual rates compared to the loss level of the actual loss experience during the rating period because of trends in claim costs, benefit changes, etc.

   (b) Is the New York Private Passenger Preferred Risk Plan an experience rating plan or a classification plan? Explain.

3. You are constructing a retrospective rating plan for a Workmen's Compensation risk in a state in which the composition of the manual rate is as follows:

   Expected losses .600, acquisition .175, administration and audit .070, inspection and bureau .025, claim investigation and adjustment .080, taxes .025, profit .025.

The following gradation of expense applies:

	For Acquisition	For Administration and Audit
Of first \$1000 of standard premium	.175	.070
Of next \$4000 of standard premium	.125	.040
Of next \$95,000 of standard premium	.075	.040
Of standard premium in excess of \$100,000	.060	.040

If the loss conversion factor is 1.00 and an assured developing a standard premium of \$50,000 wants the maximum premium to be effective when his ratable losses reach \$36,000 and the carrier wants the minimum premium to be effective if the insured losses do not reach \$9000, what would be the following factors of the plan:

(a) Basic premium factor

(b) Maximum premium factor

(c) Minimum premium factor

(d) Tax Multiplier

The following Table M values are given for the risk where A is the ratio of the losses (without limitation) to expected losses:

A	*Charge*	*Saving*
.30	.701	.001
.50	.515	.015
.60	.428	.028
1.00	.180	.180
1.20	.108	.308
1.50	.045	.545

4. Outline the steps in computing a rate for a given building under the Universal Mercantile Schedule.

5. Outline the fleet rating procedure for automobile fire and theft published by the National Automobile Underwriters' Association.

6. Describe and discuss the three types of credits which are applied to the basic average rates to obtain final average rates in the Escott Plan.

7. (a) Compare the California, New Jersey, and New York disability laws with respect to premium rates which may be charged by private insurance carriers.

(b) Name and briefly describe five types of legislation designed to meet the problem of the uninsured motorist.

8. Outline the principal provisions of the law under which the New Jersey unsatisfied judgment fund is to be financed and operated, and discuss the intended purposes and equities of these provisions.

9. What advantages are cited for it by proponents of Statewide Compulsory Unemployment Insurance?

10. (a) Discuss the status of Fire and Casualty Agents from the standpoint of coverage under the Social Security Act prior to and after the 1950 Amendments.

    (b) Describe the benefits payable under the Social Security Act to survivors of a "fully-covered" male.

PART III

1. (a) Outline the possible shortcomings involved in the unqualified use, for establishing "permanent total" case reserves, of the Casualty Actuarial Society's Mortality Table for Lives Disabled by Industrial Accidents.

   (b) A carrier has been using a reserve for incurred-but-not-reported losses of $1,000,000 and has been satisfied that this is the proper amount. You are faced with the following facts and are asked for a recommendation: The average cost per case settled is $330 this year as compared with $300 in the previous year. The number of cases reported per $1000 of earned premium is 18 cases this year as compared with 15 cases last year. The earned premium is running approximately 25 per cent ahead of the previous year. Of this increase, ten points is accounted for by an increase in rate levels with the remainder due to actual increases in exposure.

   What would you recommend?

2. Your company commences writing three year term policies on a 100-78-78 basis. Each installment when due is entered as written premium. The policy provides that company cancellation be pro-rata the policy premium. Describe two methods of calculating the unearned premium reserve and illustrate with a three year policy for $256 written April 15, 1952, and being reserved at December 31, 1952.

3. From the statutory distribution of unallocated loss expense paid, develop factors for bodily injury liability insurance and for workmen's

compensation insurance to establish unallocated loss expense reserves, and explain how such factors should be used.

4. (a) What are the defects of Schedule P?

   (b) Describe the use of Schedule P as the basis for a qualitative and a quantitative test of the adequacy of a carrier's case estimates for automobile liability insurance.

NOTE: Answer either question 5 or question 6, but not both.

5. Discuss the effect of installment plan writings on earned premium as calculated from data submitted in accordance with the National Board of Fire Underwriters Statistical Plan.

6. Briefly discuss the National Automobile Underwriters Association's Statistical Plan for physical damage coverages and outline what compilations of experience can be produced from the statistics submitted for rate making purposes.

NOTE: Answer either question 7 or question 8, but not both.

7. What internal statistical uses would you suggest be made, by a large countrywide writer of workmen's compensation insurance, of the data developed for first and subsequent reportings under the Unit Statistical Plan.

8. (a) Outline a punch card which a multiple line casualty company could use to keep a continuous record of both calendar year and policy year incurred losses by line of insurance on an individual case estimate basis.

   (b) What important changes were made effective January 1, 1953, in the National Bureau's Automobile Liability Statistical Plan?

9. What current external statistics do you believe may be of value in indicating the trends of:

   (a) Automobile liability and property damage insurance loss costs?

   (b) Workmen's compensation insurance loss ratios?

10. (a) The probability that risk A will have an accident during its period of coverage is p. The probability that risk B will have an accident during the same period of coverage is q. What is the probability that there will be only one accident?

    (b) When two sources of experience indicate different values of a statistic (claim frequency, average claim cost, pure premium, or loss ratio), it is customary to use a weighted average of the two, using "credibilities" as weights. Such credibilities are, or may be, designed to accomplish one but not both of two separate results. What are the two results and where is each type of credibility used?

PART IV

1. (a) Designate the exhibits or schedules of the Fire and Casualty Statement blank wherein each of the following items would be shown:

   (1) Advance premiums, by line, as of December 31.

   (2) Salaries allocated to investment expense.

   (3) Agents' balances charged off.

   (4) Dividends declared and unpaid.

   (b) The Insurance Expense Exhibit contains a "Part III — Citing Adjustment For Effect of Premium Discounts and Retrospective Rating." What is the purpose of this part?

2. Outline the methods you would use in allocating Inspection Costs of a large multiple-line casualty insurance company to lines of business.

3. The following data have been taken from the records of Company X, a casualty insurance company (000 omitted). Items are 1952, or December 31, 1952, values, unless otherwise noted:

1.	Net premiums written	$24,000
2.	Unearned premiums	21,000
3.	Unearned premiums, 12-31-51	19,000
4.	Federal income taxes incurred	1,000
5.	Net investment income earned	1,100
6.	Net realized capital gain	100
7.	Net unrealized capital gain	500
8.	Net loss from increase in non-admitted assets	15
9.	Losses incurred	10,000
10.	Loss expenses incurred	1,000
11.	Other underwriting expenses incurred	9,000
12.	Net gain from agents' or premium balances charged off	7

13.	Additional capital paid in during 1952.....	500
14.	Dividends paid to stockholders............	500
15.	Total assets..........................	52,601
16.	Total liabilities	34,300
17.	Increase in liability for unauthorized reinsurance...........................	200

Prepare the Statement of Income and the Capital and Surplus Account of the Underwriting and Investment Exhibit of the Annual Statement for Company X for the year ended December 31, 1952. Use item numbers instead of description to conserve time.

4. (a) Discuss the treatment of contingent commissions under Uniform Accounting Regulations, touching upon allocation to functional group, primary and secondary lines of business.

   (b) Insurance carrier investments may be carried at Book Value, Insurance Department Value, or Actual Market Value. Distinguish between these and tell when each is used.

NOTE: Answer any four of the questions numbered 5 through 10.

5. Discuss the need for (a) a deductible provision and (b) a co-insurance provision in the underwriting of Blanket Medical Expense Insurance.
6. There are advocates of either a $50 deductible, or a 50 per cent share of loss with a maximum of $100 paid by insured, as an answer to the demand for individual private passenger automobile liability merit rating plans. Discuss the advantages and disadvantages of such proposals.
7. Discuss the distinctions between "occurrence" and "accident" as the basis for General Liability Bodily Injury and Property Damage coverages.
8. Outline the steps possible toward more complete use of statistical data in the making of fire insurance rates for subdivisions of the residential class.
9. Discuss the reinsurance treaties usually entered into by a medium sized company writing fire and allied lines insurance only.
10. Some people have proposed the abolition of the fire insurance 3-year and 5-year term rules with suitable adjustments in rates to maintain equity. Discuss the problems involved in doing this.

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INDEX TO VOLUME XL (Con.)

CASUALTY ACTUARIAL SOCIETY

ORGANIZED 1914

1954 YEAR BOOK

Foreword

Officers, Council and Committees

List of Fellows and Associates

Officers of the Society since Organization

List of Deceased Members

Constitution and By-Laws

Examination Requirements

(Addendum to Volume XL of the *Proceedings*)

Corrected to January 25, 1954 No. 33

FOREWORD

The Casualty Actuarial Society was organized November 7, 1914 as the Casualty Actuarial and Statistical Society of America, with 97 charter members of the grade of Fellow. The present title was adopted on May 14, 1921. The object of the Society is the promotion of actuarial and statistical science as applied to the problems of casualty and social insurance by means of personal intercourse, the presentation and discussion of appropriate papers, the collection of a library and such other means as may be found desirable. The organization of the Society was brought about through the suggestion of Dr. I. M. Rubinow, who became the first president. The problems surrounding workmen's compensation were at that time the most urgent, and consequently many of the members played a leading part in the development of the scientific basis upon which workmen's compensation insurance now rests.

The members of the Society have also presented original papers to the *Proceedings* upon the scientific formulation of standards for the computation of both rates and reserves in accident and health insurance, liability, burglary, and the various automobile coverages. The presidential addresses constitute a valuable record of the current problems facing the casualty insurance business. Other papers in the *Proceedings* deal with acquisition costs, pension funds, legal decisions, investments, claims, reinsurance, accounting, statutory requirements, loss reserves, statistics, and the examination of casualty companies. "The Recommendations for Study" appear in *Proceedings* No. 71 and are in effect for the 1953 examinations and thereafter. The Report of the Committee on Mortality for Disabled Lives together with commutation tables and life annuities has been printed in *Proceedings* No. 62. The Committee on Compensation and Liability Loss and Loss Expense Reserves submitted a report which appears in Volume XXXV.

At the November 1950 meeting of the Society the Constitution and By-Laws were amended to enlarge the scope of the Society to include all lines of insurance other than life insurance. The effect of the amendment was to include fire insurance and allied lines in recognition of multiple line writing powers granted by many states to both casualty companies and fire companies.

The lower grade of membership in the Society is that of Associate. Examinations have been held every year since organization; they are held on the second Tuesday and following Wednesday during the month of May, in various cities in the United States and Canada. The membership of the Society consists of actuaries, statisticians, and executives who are connected with the principal casualty companies and organizations in the United States and Canada. The Society has a total membership of 304 consisting of 161 Fellows and 143 Associates. The annual meeting of the Society is held in New York in November.

The Society issues a publication entitled the *Proceedings* which contains original papers presented at the meetings. The *Proceedings* also contain discussions of papers, and reviews of books. This Year Book is published annually. "Recommendations for Study" is a pamphlet which outlines the course of study to be followed in connection with the examinations for admission. These two booklets may be obtained free upon application to the Secretary-Treasurer, 107 William Street, Room 1230, New York 38, N. Y.

CASUALTY ACTUARIAL SOCIETY

NOVEMBER 19, 1953

THE COUNCIL

Officers: SEYMOUR E. SMITH .... *President*
DUDLEY M. PRUITT .... *Vice-President*
JOHN A. MILLS .... *Vice-President*
ALBERT Z. SKELDING .... *Secretary-Treasurer*
EMMA C. MAYCRINK .... *Editor*
GILBERT R. LIVINGSTON .... *Librarian*
JOHN W. WIEDER, JR...... *Chairman-Examination Committee*

†*Ex-Presidents*: HARMON T. BARBER 1955
THOMAS O. CARLSON 1957

†*Ex-Vice-Presidents*: NORTON E. MASTERSON 1955
JOSEPH LINDER 1957

†*Elected*: ARTHUR L. BAILEY 1954
JOHN W. CARLETON 1954
GEORGE B. ELLIOTT 1954
ROGER A. JOHNSON 1955
ARTHUR N. MATTHEWS 1955
MATTHEW H. MCCONNELL 1955
D. R. UHTHOFF 1956
NELS M. VALERIUS 1956
HARRY V. WILLIAMS 1956

*Terms expire at the annual meeting in November 1954.
†Terms expire at the annual meeting in November of the year given.

COMMITTEES

Committee on Admissions

James M. Cahill (Chairman)
Harmon T. Barber
Harold J. Ginsburgh
Norton E. Masterson
Francis S. Perryman

Auditing Committee

Howard G. Crane (Chairman)
Edward S. Allen
Arthur N. Matthews

Editorial Committee

Emma C. Maycrink (Chairman)

Assistant Editors

Clarence A. Kulp
Frank Harwayne

Educational Committee

Ernest T. Berkeley (Chairman)
John W. Carleton
Clarence A. Kulp
Laurence H. Longley-Cook
John W. Wieder, Jr.

Examination Committee

John W. Wieder Jr. (General Chairman)

Fellowship

Harold W. Schloss (Chairman)
John A. Resony
Richard J. Wolfrum

Associateship

Francis J. Hope (Chairman)
William J. Hazam
Earl F. Petz, Jr.

Committee on Papers

Russell P. Goddard (Chairman)
Matthew H. McConnell
Matthew Rodermund
Emma C. Maycrink (*ex-officio*)

Committee on Program

Seymour E. Smith, Chairman (*ex-officio*)
John A. Mills (*ex-officio*)
Dudley M. Pruitt (*ex-officio*)
Albert Z. Skelding (*ex-officio*)

Committee on Publications

Seymour E. Smith, Chairman (*ex-officio*)
Charles M. Graham
Emma C. Maycrink
Albert Z. Skelding

SPECIAL COMMITTEES

Committee on Social Insurance

Harold J. Ginsburgh (Chairman)
Jarvis Farley
A. L. Kirkpatrick
Clarence A. Kulp
William Leslie, Jr.
W. Rulon Williamson

Committee on Loss and Loss Expense Reserves

Joseph Linder (Chairman)
Harmon T. Barber
John W. Carleton
Norton E. Masterson
John A. Mills
E. Shaw Skillings

Research Committee

Dudley M. Pruitt (Chairman)
F. Stuart Brown
Frederick W. Doremus
M. Stanley Hughey
William Leslie, Jr.
Norman Rosenberg
D. R. Uhthoff
Harry V. Williams
Richard J. Wolfrum

Special Committee on Membership

James M. Cahill (Chairman)
Harmon T. Barber
Thomas O. Carlson
Harold J. Ginsburgh
Norton E. Masterson
John A. Mills
Francis S. Perryman

MEMBERSHIP OF THE SOCIETY, NOVEMBER 19, 1953

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.

Admitted	
*Nov. 21, 1930	AINLEY, JOHN W., Supervising Underwriter, The Travelers Insurance Company, 700 Main Street, Hartford 15, Conn.
*Nov. 14, 1947	ALLEN, EDWARD S., Actuary, New York Compensation Insurance Rating Board, 100 E. 42nd Street, New York 17, N. Y.
*Nov. 13, 1931	AULT, GILBERT E., Actuary, Church Pension Fund and Church Life Insurance Corporation, 20 Exchange Place, New York 5, N. Y.
Nov. 19, 1948	BAILEY, ARTHUR L., Third Vice-President, Lumbermens Mutual Casualty Co., 4750 Sheridan Road, Chicago 40, Ill.
*Nov. 20, 1924	BARBER, HARMON T., Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov 14, 1947	BARKER, LORING M., Actuary, Firemen's Fund Insurance Group, 401 California Street, San Francisco 20, Calif.
*Nov. 20, 1942	BART, ROBERT D., Assistant Treasurer and Comptroller, West Bend Aluminum Co., 92 Island Avenue, West Bend, Wis.
*Nov. 18, 1932	BARTER, JOHN L., Vice-President, Hartford Accident & Indemnity Co., 690 Asylum Avenue, Hartford 15, Conn.
*Nov. 13, 1931	BATHO, ELGIN R., Associate Actuary, Berkshire Life Insurance Co., 7 North Street, Pittsfield, Mass.
*Nov. 22, 1934	BERKELEY, ERNEST T., Actuary, Employers' Liability Assurance Corporation, Ltd., American Employers' Insurance Company and Employers' Fire Insurance Company, 110 Milk Street, Boston 7, Mass.
*Nov. 19, 1953	BEVAN, JOHN R., Actuarial Department, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
†	BLACK, S. BRUCE, President, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
Apr. 20, 1917	BLANCHARD, RALPH H., Professor of Insurance, Graduate School of Business, Columbia University, New York 27, N. Y.
†	BREIBY, WILLIAM, Vice-President, Pacific Mutual Life Insurance Company, 523 West 6th St., Los Angeles 14, Cal.
*Nov. 21, 1952	BRINDISE, RALPH S., Casualty Actuary, Standard Oil Company (Indiana) 910 So. Michigan Ave., Chicago 80, Ill.
*Nov. 18, 1927	BROWN, F. STUART, Superintendent Systems and Procedures Dept., American Insurance Group, 15 Washington Street, Newark 2, N. J.
Oct. 22, 1915	BROWN, HERBERT D., (Retired), Glenora-on-Lake Seneca, Dundee, New York.
†	BUCK, GEORGE B., Consulting Actuary, 150 Nassau Street, New York 38, N. Y.

FELLOWS

Admitted	
Apr. 20, 1917	BURHOP, WILLIAM H., President, Employers Mutual Liability Insurance Company, 407 Grant Street, Wausau, Wis.
*Nov. 23, 1928	BURLING, WILLIAM H., Assistant Secretary, Group Department, The Travelers Insurance Company, 700 Main Street, Hartford 15, Conn.
*Nov. 19, 1929	CAHILL, JAMES M., Secretary, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 18, 1932	CAMERON, FREELAND R., Vice-President and Comptroller, American Title and Insurance Company, 901 N.E. Second Avenue, Miami 32, Florida.
†	CAMMACK, EDMUND E., Vice-President and Actuary, Aetna Life Insurance Company, Hartford 15, Conn.
*Nov. 17, 1938	CARLETON, JOHN W., Actuary, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
*Nov. 21, 1930	CARLSON, THOMAS O., Actuary, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 18, 1949	CLARKE, JOHN W., Associate Actuary, Life Actuarial Department, The Travelers Insurance Company, 700 Main St., Hartford, 15, Conn.
*Nov. 15, 1918	COATES, BARRETT N., Coates, Herfurth and England, Consulting Actuaries, 620 Market Street, San Francisco 4, Calif.
*Nov. 17, 1922	COATES, CLARENCE S., Third Vice-President, Lumbermens Mutual Casualty Company, 4750 Sheridan Road, Chicago 40, Ill.
Oct. 27, 1916	COGSWELL, EDMUND S., (Retired), 18 Cedar St., Wenham, Mass.
Feb. 19, 1915	COLLINS, HENRY, (Retired), Box 250, Windermere, Florida.
*Nov. 22, 1934	CONSTABLE, WILLIAM J., 45 Pondfield Road, West, Bronxville 8, N. Y.
*Nov. 22, 1934	COOK, EDWIN A., Assistant General Manager and Secretary, Interboro Mutual Indemnity Insurance Company, 270 Madison Avenue, New York 16, N. Y.
*Nov. 18, 1925	CORCORAN, WILLIAM M., Partner, Wolfe, Corcoran & Linder, 116 John Street, New York 38, N. Y.
*Nov. 19, 1926	CRANE, HOWARD G., Vice-President and Treasurer, General Reinsurance Corporation, and North Star Reinsurance Corporation, 90 John Street, New York 38, N. Y.
*Nov. 21, 1952	CRITCHLEY, DOUGLAS, Actuarial Department, Royal-Liverpool Group, 150 William St., New York 38, N. Y.
*Nov. 22, 1946	CROUSE, CHARLES W., Consulting Actuary, C. E. Preslan & Co., Inc., 815 Superior Ave., N.E., Cleveland 14, Ohio.
Nov. 19, 1953	CURRY, HAROLD E., Vice President, State Farm Automobile Insurance Co., Bloomington, Ill.
*Nov. 18, 1932	DAVIES, E. ALFRED, (Retired), Falls Village, Conn.
*Nov. 18, 1927	DAVIS, EVELYN M., Woodward, Ryan, Sharp & Davis, Consulting Actuaries, 55 Broadway, New York 6, N. Y.

FELLOWS

Admitted	
Nov. 16, 1951	DOREMUS, FREDERICK W., Manager, Eastern Underwriters Association, 85 John St., New York 38, N. Y.
*Nov. 17, 1920	DORWEILER, PAUL, Actuary, Aetna Casualty & Surety Company Hartford 15, Conn.
*Nov. 24, 1933	EDWARDS, JOHN, Actuary, Ontario Insurance Department, Parliament Buildings, Toronto 2, Ontario, Canada.
*Nov. 15, 1940	ELLIOTT, GEORGE B., General Manager, Pennsylvania Compensation Rating and Inspection Bureau, 620 Packard Building, 15th at Chestnut Street, Philadelphia 2, Pa.
*Nov. 17, 1922	ELSTON, JAMES S., Associate Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, 15, Conn.
*Nov. 15, 1935	EPPINK, WALTER T., Vice-President and Actuary, Merchants Mutual Casualty Co., Merchants Mutual Building, Buffalo 5, N. Y.
†	FALLOW, EVERETT S., (Retired), 28 Sunset Terrace, West Hartford, Conn.
*Nov. 15, 1940	FARLEY, JARVIS, Secretary-Treasurer and Actuary, Massachusetts Indemnity Insurance Co., 654 Beacon Street, Boston 15, Mass.
†	FARRER, HENRY, (Retired), 4 North Ave., Fanwood, N. J.
*Nov. 15, 1935	FITZHUGH, GILBERT W., Third Vice-President, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
Feb. 19, 1915	FONDILLER, RICHARD, Consulting Actuary, Woodward and Fondiller, 200 W. 57th Street, New York 19, N. Y.
*Nov. 18, 1927	FREDERICKSON, CARL H., Actuary, Canadian Underwriters Association, 55 York Street, Toronto, Canada.
*Nov. 22, 1934	FULLER, GARDNER V., Second Vice-President, Lumbermen's Mutual Casualty Co., and American Motorist Insurance Co., 4750 Sheridan Road, Chicago 40, Ill.
*Nov. 19, 1948	GARDINER, JAMES B., Assistant Actuary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 20, 1924	GINSBURGH, HAROLD J., Vice-President, American Mutual Liability Insurance Company, American Policyholders' Insurance Company, Allied American Mutual Fire Insurance Company, 142 Berkeley Street, Boston 17, Mass.
*Nov. 21, 1930	GLENN, J. BRYAN, 5214 First Street, N.W., Washington 11, D.C.
*Nov. 13, 1931	GODDARD, RUSSELL P., Assistant to the President, Pennsylvania Manufacturers Association Casualty Insurance Co., Finance Building, Philadelphia, Pa.
†	GOODWIN, EDWARD S., (Investment Counselor, Retired) 96 Garvan Street, East Hartford 8, Conn.
*Nov. 19, 1926	GRAHAM, CHARLES M., Chief Self-Insurance Examiner, New York State Workmen's Compensation Board, 55 Franklin Street, New York 13, N. Y.

FELLOWS

Admitted	
†	GRAHAM, WILLIAM J., Consultant, 1070 Park Ave., New York 18, N Y.
*Nov. 19, 1953	GRAVES, CLYDE H., Actuary, Mutual Insurance Rating Bureau and Mutual Insurance Advisory Association, 111 Fourth Ave. New York 3, N. Y.
†	GREENE, WINFIELD W., President, W. W. Greene Inc., Reinsurance 110 Fulton St., New York 38, N. Y.
*Nov. 19, 1953	HALEY, JAMES B., JR., Actuary, Argonaut Insurance Exchange, 210 Sansome Street, San Francisco, Calif.
†	HAMMOND, H. PIERSON, (Retired), 22 Vanderbilt Road, West Hartford, Conn.
*Nov. 17, 1950	HARWAYNE, FRANK, Chief Actuary, New York State Insurance Department, 61 Broadway, New York 6, N. Y.
Oct. 22, 1915	HATCH, LEONARD W., (Retired), 425 Pelham Manor Road, Pelham Manor, New York.
*Nov. 17, 1950	HAZAM, WILLIAM J., Assistant Actuary, American Mutual Liability Insurance Co., 142 Berkeley Street, Boston 16, Mass.
*Nov. 19, 1926	HAUGH, CHARLES J., Secretary, Compensation and Liability Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 16, 1951	HEWITT, CHARLES C., JR., New Jersey Manufacturers Casualty Insurance Co., 363 W. State Street, Trenton, N. J.
*Nov. 22, 1934	HOOKER, RUSSELL O., Actuary and Director of Examinations, State of Connecticut Insurance Department, Hartford 15, Conn.
*Nov. 17, 1950	HOPE, FRANCIS J., Rating and Research, Hartford Accident and Indemnity Co., 690 Asylum Avenue, Hartford 15, Conn.
Nov. 18, 1932	HUEBNER, SOLOMON STEPHEN, Chairman of Board, The American Institute for Property and Liability Underwriters, 3924 Walnut St., Philadelphia 4, Pa.
*Nov. 14, 1947	HUGHEY, M. STANLEY, Third Vice President, Lumbermens Mutual Casualty Company, 4750 Sheridan Road, Chicago 40, Ill.
†	HUNTER, ARTHUR, (Retired), 124 Lloyd Road, Montclair, N. J.
Feb. 25, 1916	JACKSON, CHARLES W., (Retired), 74 Quimby Avenue, White Plains, N. Y.
*Nov. 19, 1929	JACKSON, HENRY HOLLISTER, Vice-President, National Life Insurance Co., 131 State Street, Montpelier, Vt.
*Nov. 14, 1941	JOHNSON, ROGER A., Actuary, Utica Mutual Insurance Co., 185 Genesee Street, Utica, N. Y.
*Nov. 16, 1939	JONES, HAROLD M., Group Research Division, John Hancock Mutual Life Insurance Company, 200 Berkeley Street, Boston 17, Mass.
*Nov. 19, 1926	KELTON, WILLIAM H., Associate Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 21, 1919	KIRKPATRICK, A. LOOMIS, Manager Insurance Department, Chamber of Commerce of the U. S. A., 1615 H Street, N.W., Washington 6, D.C.

FELLOWS

Admitted	
*Nov 14 1941	Kole, Morris B., Principal Actuary, State Insurance Fund, 625 Madison Avenue, New York 22, N. Y.
*Nov. 24, 1933	Kormes, Mark, Consulting Actuary, 285 Madison Avenue, New York 17, N. Y.
Nov. 19, 1953	Kuenkler, Arthur S., Vice President, United States Fidelity & Guaranty Co., Baltimore, Md.
Nov. 23, 1928	Kulp, Clarence A., Professor of Insurance, University of Pennsylvania, Logan Hall, 36th Street and Woodland Avenue, Philadelphia 4, Pa.
*Nov. 18, 1949	La Croix, Harold F., Jr., Assistant Actuary, Accident and Group Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
Nov. 13, 1931	La Mont, Stewart M., (Retired), Hotel Claremont, Berkeley, Calif.
*Nov. 24, 1933	Lange, John R., Commissioner of Insurance, State of Wisconsin. State Capitol, Madison 2, Wis.
†	Leal, James R., Vice-President and Secretary, Interstate Life and Accident Co., Interstate Building, 540 McCallie Avenue, Chattanooga 3, Tenn.
†	Leslie, William, General Manager, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 17, 1950	Leslie, William, Jr., Assistant Manager, National Council on Compensation Insurance, 45 East 17th Street, New York 3, N.Y.
*Nov 20, 1924	Linder, Joseph, Consulting Actuary, Wolfe, Corcoran & Linder, 116 John Street, New York 38, N. Y.
*Nov. 17, 1950	Livingston, Gilbert R., Assistant Actuary, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 16, 1951	Longley-Cook, Laurence H., Actuary, Insurance Company of North America, 1600 Arch Street, Philadelphia 1, Pa.
Nov. 13, 1936	Lyons, Daniel J., Administrative Vice President, The Guardian Life Insurance Co. of America, 50 Union Square, New York 3, N. Y.
†	Magoun, William N., (Retired), 11 Brookdale Road, Arlington, Mass.
*Nov. 23, 1928	Marshall, Ralph M., Assistant Actuary, National Council on Compensation Insurance, 45 East 17th Street, New York 3, N. Y.
*Nov. 18, 1927	Masterson, Norton E., Vice-President and Actuary, Hardware Mutual Casualty Co. and Hardware Dealers Mutual Fire Insurance Co., 200 Strongs Avenue, Stevens Point, Wis.
*Nov. 19, 1926	Matthews, Arthur N., Associate Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
May 19, 1915	Maycrink, Emma C., Secretary-Treasurer, Association of New York State Mutual Casualty Companies, 60 East 42nd Street, New York 17, N. Y.

FELLOWS

Admitted	
*Nov. 15, 1935	McConnell, Matthew H., Associate Actuary, General Accident Fire and Life Assurance Company, Fourth and Walnut Sts. Philadelphia 5, Pa.
*Oct. 31, 1917	McManus, Robert J., Assistant Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street Hartford 15, Conn.
†	Michelbacher, G. F., President, Great American Indemnity Co., 1 Liberty Street, New York 5, N. Y.
*Nov. 17, 1938	Miller, John Haynes, Vice-President and Actuary, Monarch Life Insurance Company, 365 State St., Springfield 1, Mass.
†	Milligan, Samuel, Administrative Vice-President, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 18, 1937	Mills, John A., Vice-President and Actuary, Lumbermens Mutual Casualty Co., American Manufacturers Mutual Insurance Company and American Motorists Insurance Co., Mutual Insurance Bldg., 4750 Sheridan Road, Chicago 40, Ill.
*Nov. 18, 1921	Montgomery, Victor, President, Pacific Employers Insurance Co., 1033 So. Hope Street, Los Angeles 15, Calif.
†	Moore, George D., Actuary, 13 Emerson Street, E. Orange, N. J.
*Nov. 17, 1920	Mueller, Louis H., 2845 Lake Street, San Francisco 21, Calif.
*Nov. 17, 1950	Munterich, George C., Statistician, Hartford Accident and Indemnity Co., 690 Asylum Ave., Hartford 15, Conn.
May 28, 1920	Murphy, Ray D., President, The Equitable Life Assurance Society of the U. S. A., 393 Seventh Avenue, New York 1, N. Y.
*Nov. 15, 1935	Oberhaus, Thomas M., Consulting Actuary, Woodward and Fondiller, 200 West 57th Street, New York 19, N. Y.
†	Olifiers, Edward, Consulting Actuary, Caixa Postal 8, Petropolis, Rio, Brazil.
†	Orr, Robert K., (Retired), 226 S. Logan Street, Lansing 15, Mich.
*Nov. 21, 1919	Outwater, Olive E., (Retired), Harbert, Michigan.
*Nov. 21, 1930	Perryman, Francis S., Assistant U. S. Manager and Actuary, Royal-Liverpool Insurance Group, 150 William Street, New York 38, N. Y.
*Nov. 14, 1941	Peters, Stefan, Actuary, Connell, Price and Co., 19 Milk St., Boston 9, Mass.
*Nov. 21, 1952	Petz, Earl F., Jr., Procedures Department, Lumbermens Mutual Casualty Co., Chicago 40, Ill.
Nov. 19, 1926	Phillips, Jesse S., Director, Great American Indemnity Co., 1 Liberty Street, New York 5, N. Y.
*Nov. 24, 1933	Pickett, Samuel C., (Retired) Macktown Road, Windsor, Conn.
*Nov. 17, 1922	Pinney, Sydney D., 290 Wolcott Hill Road, Wethersfield 9, Conn.
*Nov. 13, 1931	Pruitt, Dudley M., Assistant General Manager and Acturary, General Accident Fire & Life Assurance Corp., Fourth & Walnut Sts., Philadelphia 5, Pa.

FELLOWS

Admitted	
*Nov. 18, 1949	RESONY, JOHN A., Casualty Rate Analyst, Connecticut Insurance Department, State Office Building, Hartford 2, Conn.
Nov. 16, 1951	RICE, HOMER D., General Manager, New York Fire Insurance Rating Organization, 85 John Street, New York 38, N. Y.
May 23, 1919	RICHARDSON, FREDERICK, (Retired), Coombe, Bradford Abbas, Sherborne, Dorset, England.
*Nov. 19, 1926	RICHTER, OTTO C., Chief Actuary, American Telephone & Telegraph Co., 195 Broadway, New York 7, N. Y.
May 24, 1921	RIEGEL, ROBERT, Professor of Statistics and Insurance, University of Buffalo, Buffalo 14, N. Y.
*Nov. 14, 1947	RODERMUND, MATTHEW, Assistant Secretary, Interboro Mutual Indemnity Insurance Company, 270 Madison Avenue, New York 16, N. Y.
*Nov. 14, 1947	ROSENBERG, NORMAN, Executive Assistant, Farmers Insurance Group, 4680 Wilshire Blvd., Los Angeles 54, Calif.
*Nov. 14, 1947	ROWELL, JOHN H., Consulting Actuary, 807 Crystal Springs Road, San Mateo, Calif.
*Nov. 17, 1938	RUCHLIS, ELSIE, 872 East 24th Street, Brooklyn 10, N. Y.
*Nov. 14, 1947	SALZMANN, RUTH E., Assistant Actuary, Hardware Mutual Casualty Company, Hardware Dealers Mutual Fire Insuarnce Co., 200 Strongs Ave., Stevens Point, Wis.
*Nov. 20, 1942	SATTERTHWAITE, FRANKLIN E., Consulting Statistician, Rath and Strong, Inc., 80 Federal Street, Boston, Mass.
*Nov. 19, 1948	SCHLOSS, HAROLD W., Superintendent, Actuarial Department, Royal-Liverpool Insurance Group, 150 William Street, New York 38, N. Y.
*Nov. 18, 1937	SHAPIRO, GEORGE I., 934 E. 9th Street, Brooklyn 30, N. Y.
*Nov. 13, 1931	SILVERMAN, DAVID, Partner, Wolfe, Corcoran & Linder, 116 John Street, New York 38, N. Y.
*Nov. 19, 1929	SKELDING, ALBERT Z., Assistant Manager, National Council on Compensation Insurance, 45 East 17th St., New York 3, N. Y.
*Nov. 19, 1929	SKILLINGS, E. SHAW, Assistant Vice-President and Actuary, Allstate Insurance Co., 7447 Skokie Blvd., Skokie, Ill.
*Nov. 18, 1932	SMICK, JACK J., Consulting Actuary, 38 Park Row, New York 7, N. Y.
*Nov. 15, 1940	SMITH, SEYMOUR E., Associate Actuary, Fire and Casualty Actuarial Department, The Travelers Insurance Co., Hartford 15, Conn.
Nov. 16, 1951	SNOW, A. J., Manager, Oregon Insurance Rating Bureau, 329 S.W. 5th Avenue, Portland, Ore.
*Nov. 24, 1933	ST. JOHN, JOHN B., Consulting Actuary, Box 57, Penllyn, Pa.
*Nov. 18, 1927	STONE, EDWARD C., Chairman of the Board, American Employers' Insurance Company, 33 Broad Street, Boston 9, Mass.

FELLOWS

Admitted	
*Nov. 17, 1920	TARBELL, THOMAS F., Vice President and Actuary, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
†	THOMPSON, JOHN S., Vice-Chairman of Board, The Mutual Benefit Life Insurance Co., 300 Broadway, Newark 4, N. J.
†	TRAIN, JOHN L., President, Utica Mutual Insurance Co., 185 Genesee Street, Utica 2, N. Y.
Nov. 17, 1922	TRAVERSI, ANTONIO T., 9 Balfour Street, Wollstonecraft, Sydney, Australia.
*Nov. 19, 1953	TRIST, JOHN A. W., Statistical Department, Lumbermens Mutual Casualty Company, Mutual Insurance Bldg., 4750 Sheridan Road, Chicago 40, Ill.
*Nov. 19, 1948	TURNER, PAUL A., 1534 N. Las Palmas Ave., Los Angeles 28, Calif.
*Nov. 14, 1947	UHTHOFF, D. R., Associate Actuary, Employers Mutual Liability Insurance Co. of Wisconsin, Wausau, Wis.
*Nov. 23, 1928	VALERIUS, NELS M., Assistant Actuary, Aetna Casualty and Surety Co., Hartford 15, Conn.
*Nov. 21, 1919	VAN TUYL, HIRAM O., (Retired), 17 Coolidge Ave., White Plains, N. Y.
*Nov. 16, 1951	VERGANO, ELIA (Retired), 390 Central Park, W., New York 25, N. Y.
Nov. 16, 1951	VINCENT, LEWIS A., General Manager, National Board of Fire Underwriters, 85 John Street, New York 38, N. Y.
*Nov. 17, 1920	WAITE, ALAN W., Secretary, The Aetna Casualty and Surety Co. 151 Farmington Ave., Hartford 15, Conn.
Nov. 16, 1951	WATSON, LEON A., General Manager, The Fire Insurance Rating Organization of New Jersey, 31 Clinton St., Newark, N. J.
*Nov. 14, 1947	WIEDER, JOHN W., JR., Aetna Casualty and Surety Company, Hartford 15, Conn.
*Nov. 15, 1935	WILLIAMS, HARRY V., Secretary, Hartford Accident and Indemnity Co., 690 Asylum Ave., Hartford 15, Conn.
Nov. 14, 1941	WILLIAMSON, W., RULON, Senior Actuarial Consultant, The Wyatt Company, 3400 Fairhill Drive, Washington 23, D.C.
*Nov. 13, 1931	WITTICK, HERBERT E., Assistant General Manager and Secretary, Pilot Insurance Co., 199 Bay Street, Toronto 1, Canada.
*Nov. 18, 1949	WOLFRUM, RICHARD J., Assistant Actuary, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
Nov 16, 1951	WOODALL, JOHN P., Secretary, Southeastern Underwriters Association, 327 Trust Company of Georgia Bldg., Atlanta, Ga.
Nov. 19, 1953	YOUNT, HUBERT W., Vice President, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.

ASSOCIATES

Those marked (*) have been admitted as Associates upon examination by the Society.

Admitted	
May 23, 1924	ACKER, MILTON, Manager, General Liability Division, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 15, 1918	ACKERMAN, SAUL B., Professor of Insurance, School of Commerce, New York University, Washington Square, New York 6, N. Y.
*Nov. 16, 1939	AIN, SAMUEL N., Consulting Actuary, 120 Broadway, New York 5, N. Y.
Apr. 5, 1928	ALLEN, AUSTIN F., President, Texas Employers' Insurance Association, P.O. Box 2759, Dallas 1, Texas.
Nov. 15, 1918	ANKERS, R. E., Vice-President and Treasurer, Continental Life Insurance Co., Inc., Investment Building, 15 and K Streets., N.W., Washington 5, D.C.
*Nov. 21, 1930	ARCHIBALD, A. EDWARD, Vice-President and Actuary, Volunteer State Life Insurance Company, Chattanooga 1, Tenn.
*Nov. 16, 1951	BARKER, GORDON M., Actuarial Department, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
*Nov. 24, 1933	BARRON, JAMES C., Asst. Treasurer, General Reinsurance Corporation and North Star Reinsurance Corporation, 90 John Street, New York 38, N. Y.
*Nov. 23, 1928	BATEMAN, ARTHUR E., c/o Arthur Q. Melendy, Southboro, Mass.
*Nov. 15, 1940	BATHO, BRUCE, Associate Actuary, Life Insurance Company of Georgia, 573 W. Peachtree St., N.E., Atlanta 1, Georgia.
*Nov. 19, 1953	BENNETT, NORMAN J., Assistant Actuary, Department of Banking and Insurance, Division of Insurance, 100 Nashua St., Boston 14, Mass.
*Nov. 18, 1925	BITTEL, W. HAROLD, Chief Actuary, Department of Banking and Insurance, Trenton 7, N. J.
Nov. 17, 1920	BLACK, NELLAS C., Manager, Statistical Department, Maryland Casualty Co., Baltimore 3, Md.
*Nov. 15, 1940	BLACKHALL, JOHN M., California-Western States Life Insurance Company, 2020 I St., Sacramento, Calif.
*Nov. 22, 1934	BOMSE, EDWARD L., Assistant Manager, Foreign Department, Royal-Liverpool Insurance Group, 150 William Street, New York 38, N. Y.
*Nov. 19, 1953	BONDY, MARTIN, Actuarial Department, Royal-Liverpool Insurance Group, 150 William St., New York 38, N. Y.
*Nov. 23, 1928	BOWER, P. S., Assistant General Manager and Treasurer, The Great-West Life Assurance Company, Winnipeg, Manitoba, Canada.
*Nov. 17, 1950	BOYAJIAN, JOHN H., Assistant Actuary, National Council on Compensation Insurance, 45 East 17th St., New York 3, N. Y.

ASSOCIATES

Admitted	
*Nov. 15, 1918	BRUNNQUELL, HELMUTH G., (Retired), 1013 East Circle Drive, Milwaukee 11, Wis.
*Oct. 22, 1915	BUFFLER, LOUIS, Underwriting Director, The State Insurance Fund, 625 Madison Avenue, New York 22, N. Y.
*Nov. 20, 1924	BUGBEE, J. M. Manager, Automobile Department, Maryland Casualty Co., Box 1228, Baltimore 3, Md.
Mar. 31, 1920	BURT, MARGARET A., Office of George B. Buck, Consulting Actuary, 150 Nassau Street, New York 38, N. Y.
Nov. 17, 1922	CAVANAUGH, L. D., President, Federal Life Insurance Co., 168 N. Michigan Avenue, Chicago 1, Ill.
*Nov. 18, 1927	CHEN, S. T., Consulting Actuary, Wing On Life Assurance Co., 26 Des Yoenx Road, Central, Hong Kong, China.
Nov. 19, 1953	CONTE, JOSEPH P., Associate Actuary, Woodward & Fondiller, 200 West 57th Street, New York 19, N. Y.
*Nov. 24, 1933	CRAWFORD, W. H., Treasurer, Industrial Indemnity Co., 155 Sansome Street, San Francisco 4, Calif.
*Nov. 18, 1932	CRIMMINS, JOSEPH B., Assistant Actuary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 19, 1953	CROFTS, GEOFFREY, Associate Professor of Actuarial Mathematics, University of Manitoba, Winnipeg, Man., Canada
*Nov. 21, 1952	DANIEL, C. M., Hardware Mutual Casualty Company, 200 Strongs Avenue, Stevens Point, Wis.
*Nov. 18, 1925	DAVIS, MALVIN E., Vice-President and Actuary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 14, 1941	DOWLING, WILLIAM F., Executive Vice-President, Lumber Mutual Casualty Co., 260 Fourth Avenue, New York 10, N. Y.
June 5, 1925	EGER, FRANK A., Secretary-Comptroller, Indemnity Insurance Co. of North America, 1600 Arch Street, Philadelphia 1, Pa.
*Nov. 16, 1951	FAIRBANKS, ALFRED V., Assistant Actuary, Monarch Life Insurance Company, 365 State Street, Springfield 1, Mass.
*Nov. 16, 1923	FITZ, L LEROY, Group Department, John Hancock Mutual Life Insurance Company, Boston 17, Mass.
*Nov. 16, 1923	FLEMING, FRANK A., General Manager, Mutual Insurance Rating Bureau, 111 Fourth Ave., New York 3, N. Y.
*Nov. 21, 1952	FOSTER, ROBERT B., Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 21, 1952	FOWLER, THOMAS W., Actuarial Department, Royal-Liverpool Insurance Group, 150 William Street, New York 38, N. Y.
*Nov. 21, 1952	FRANKLIN, N. M., Actuary, Surety Association of America, 60 John Street, New York 38, N. Y.
*Nov. 13, 1936	FRUECHTEMEYER, FRED J., Assistant to Comptroller, The Andrew Jergens Company, 2535 Spring Grove Ave., Cincinnati 14, Ohio.

ASSOCIATES

Admitted	
*Nov. 19, 1929	FURNIVALL, MAURICE L., Associate Actuary, Accident and Group Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 18, 1932	GETMAN, RICHARD A., Assistant Actuary, Life Department, The Travelers Insurance Co., 700 Main St., Hartford 15, Conn.
*Nov. 17, 1922	GIBSON, JOSEPH P., JR., President, American Mutual Reinsurance Co., 919 North Michigan Ave., Chicago 11, Ill.
*Nov. 16, 1923	GILDEA, JAMES F., Assistant Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 19, 1953	GILLAM, WILLIAM S., Actuarial Department, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 14, 1947	GINGERY, STANLEY W., Assistant Actuary, The Prudential Insurance Co., Newark, N. J.
*Nov. 18, 1927	GREEN, WALTER C., Consulting Actuary, Continental Bank Building, Salt Lake City, Utah.
*Nov. 15, 1940	GROSSMAN, ELI A., Vice-President-Actuary, Union Labor Life Insurance Co., 200 East 70th Street, New York 21, N. Y.
*Nov. 15, 1935	GUERTIN, ALFRED N., Actuary, American Life Convention, 230 N. Michigan Avenue, Chicago 1, Ill.
*Nov. 16, 1939	HAGEN, OLAF E., Metropolitan Life Insurance Company, 1 Madison Avenue, New York 10, N. Y.
*Nov. 18, 1921	HAGGARD, ROBERT E., Supervisor, Permanent Disability Rating Bureau, Industrial Accident Commission, 965 Mission Street, San Francisco 3, Calif.
*Nov. 17, 1922	HALL, HARTWELL L., Associate Actuary, Connecticut Insurance Department, 165 Capitol Avenue, Hartford 2, Conn.
*Nov. 13, 1936	HAM, HUGH P., General Manager, The British American Assurance Company, 40 Scott Street, Toronto 1, Ontario, Can.
*Nov. 19, 1953	HARACK, JOHN, Statistical Department, Lumbermen's Mutual Casualty Company, 4750 Sheridan Road, Chicago 40, Ill.
Mar. 24, 1932	HARRIS, SCOTT, Executive Vice-President, Joseph Froggatt & Co., Inc., 74 Trinity Place, New York 6, N. Y.
*Mar. 25, 1924	HART, WARD VAN B., Associate Actuary, Connecticut General Life Insurance Co., 55 Elm Street, Hartford 15, Conn.
*Nov. 19, 1953	HART, W. VAN BUREN, JR., Compensation & Liability Rating Division, Century Indemnity Company, 650 Main Street, Hartford, Connecticut
Nov. 21, 1919	HAYDON, GEORGE F., Manager Emeritus, Wisconsin Compensation Rating & Inspection Bureau, 715 N. Van Buren Street, Milwaukee 2, Wis.
*Nov. 19, 1953	HEAD, GLENN O., Actuary, The United States Life Insurance Company, 84 William Street, New York 38, N. Y.
Nov. 17, 1927	HIPP, GRADY H., Executive Vice-President, Liberty Life Insurance Co., Greenville, S. C.
*Nov. 16, 1945	HOLZINGER, ERNEST, Actuary, Pension Planning Company, 260 Madison Avenue, New York 16, N. Y.

ASSOCIATES

Admitted	
*Nov. 21, 1952	HURLBY, ROBERT L., Actuary, Liberty Mutual Fire Insurance Company, 175 Berkeley Street, Boston 17, Mass.
Nov. 19, 1929	JACOBS, CARL N., President, Hardware Mutual Casualty Co. and Hardware Dealers Mutual Fire Insurance Co., 200 Strongs Avenue, Stevens Point, Wis.
*Nov. 18, 1921	JENSEN, EDWARD S., Assistant Vice-President, Group Department, Occidental Life Insurance Co. of California, 1151 So. Broadway, Los Angeles 55, Calif.
*Nov. 16, 1951	JOHE, RICHARD L., Actuarial Department, U. S. Fidelity and Guaranty Co., Baltimore, Md.
*Nov. 21, 1952	JOHNS, M. VERNON, JR., Columbia University, New York 27, N. Y.
Nov. 21, 1930	JONES, H. LLOYD, United States Manager and Attorney, Phoenix-London Group, 55 Fifth Avenue, New York 3, N. Y.
*Nov. 21, 1919	JONES, LORING D., (Retired), 64 Raymond Avenue, Rockville Centre, Long Island, N. Y.
*Nov. 21, 1952	JONES, NATHAN F., Assistant Actuary, Prudential Insurance Company, Newark 1, N. J.
*Nov. 19, 1953	KALLOP, ROY H., Actuarial Department, National Council on Compensation Insurance, 45 East 17th Street, New York 3, N. Y.
*Nov. 19, 1953	KATZ, PHILLIP B., Associate Actuary, New York Insurance Department, 61 Broadway, New York 6, N. Y.
*Nov. 17, 1922	KIRK, CARL L., Deputy U.S. Manager, Zurich General Accident & Liability Insurance Co., 135 South LaSalle Street, Chicago 3, Ill.
*Nov. 15, 1935	KITZROW, E. W., Farmers Insurance Group, Administrative Department, 4680 Wilshire Boulevard, Los Angeles 54, Cal.
*Nov. 21, 1952	LINO, RICHARD, Actuarial Department, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 21, 1952	LISCORD, PAUL S., Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 14, 1947	LUFKIN, ROBERT W., Office Manager Craftsman Insurance Co., 137 Newbury St., Boston, Mass.
*Nov. 13, 1931	MACKEEN, HAROLD E., Assistant Actuary, Fire and Marine Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
Mar. 24, 1932	MAGRATH, JOSEPH J., Secretary, United States Guaranty Co., 90 John Street, New York 38, N. Y.
*Nov. 18, 1925	MALMUTH, JACOB, Associate Examiner, New York State Insurance Department, 61 Broadway, New York 6, N. Y.
Mar. 24, 1927	MARSH, CHARLES V. R., (Retired), 1430 Glencoe Road, P. O. Box 1115, Winter Park, Florida
*Nov. 13, 1936	MAYER, WILLIAM H., JR., Associate Manager Group Contract Bureau, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.

ASSOCIATES

Admitted	
*Nov. 17, 1950	MAYERSON, ALLEN L., Principal Actuary, New York State Insurance Department, 61 Broadway, New York 6, N. Y.
*Nov. 17, 1922	McIVER, R. A., Actuary, Washington National Insurance Co., 1630 Chicago Avenue, Evanston, Ill.
*Nov. 17, 1950	MENZEL, HENRY W., Actuarial Department, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y
*Nov. 13, 1931	MILLER, HENRY C., Comptroller-Actuary, California State Compensation Insurance Fund, 450 McAllister Street, San Francisco 1, Calif.
*Nov. 19, 1953	MILLS, RICHARD J., Statistical Department, Lumbermens Mutual Casualty Company, 4750 Sheridan Road, Chicago 40, Ill.
*Nov. 19, 1926	MILNE, JOHN L., Kennersky Farm, Church Hill, Md.
*Nov. 18, 1937	MINOR, EDUARD H., Manager Accident and Health Actuarial Division, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
Nov. 17, 1922	MONTGOMERY, JOHN C., Secretary and Treasurer, Bankers Indemnity Insurance Co., Treasurer, The American Insurance Co., 15 Washington Street, Newark 1, N. J.
May 25, 1923	MOORE, JOSEPH P., Mutual Life and Citizens Assurance Co., Ltd., P.O. Box 1770, Place D'arms, Montreal, Canada.
*Nov. 17, 1950	MURRIN, THOMAS E., Assistant Actuary, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 18, 1937	MYERS, ROBERT J., Chief Actuary, Social Security Administration, Washington 25, D.C.
*Nov. 15, 1935	NELSON, S. TYLER, Executive Vice President, Exchange Insurance Association, 175 West Jackson Blvd., Chicago, Ill.
*Oct. 27, 1916	NEWELL, WILLIAM, (Retired), 1225 Park Avenue, New York 28, N. Y.
*Nov. 18, 1925	NICHOLSON, EARL, Actuary, Joseph Froggatt & Co., Inc., 74 Trinity Place, New York 6, N. Y.
May 23, 1919	OTTO, WALTER E., President, Michigan Mutual Liability Co., Associated General Fire Co., Mutual Building, 28 West Adams Avenue, Detroit 26, Mich.
*Nov. 19, 1926	OVERHOLSER, DONALD M., Office of George B. Buck, Consulting Actuary, 150 Nassau Street, New York 7, N. Y.
Nov. 20, 1924	PENNOCK, RICHARD M., (Retired), 12 Lodges Lane, Cynwood, Pa.
*Nov. 21, 1952	PENNYCOOK, RODERICK B., Manager Underwriting and Statistical Department, Manitoba Hospital Service Association, Winnipeg, Man., Canada.
*Nov. 19, 1953	PERKINS, WILLIAM J., Group Department, The London Life Insurance Company, London, Ont. Canada
*Nov. 14, 1947	PERRY, ROBERT C., Vice-President and Actuary, State Farm Life Insurance Company, Bloomington, Ill.
Nov. 19, 1929	PHILLIPS, JOHN H., Vice-President and Actuary, Employers' Mutual Liability Insurance Co., 407 Grant Street, Wausau, Wis.

ASSOCIATES

Admitted	
*Nov. 17, 1920	Pike, Morris, Second Vice-President, John Hancock Mutual Life Insurance Co., Boston 17, Mass.
*Nov. 23, 1928	Piper, K. B., Vice-President, Provident Life and Accident Insurance Co., 721 Broad Street, Chattanooga 2, Tenn.
*Nov. 17, 1922	Poorman, William F., President, Central Life Assurance Company, Fifth and Grand Avenues, Des Moines 6, Iowa.
*Nov. 13, 1936	Potofsky, Sylvia, Senior Actuary, The State Insurance Fund, 625 Madison Avenue, New York 22, N. Y.
*Nov. 15, 1918	Raywid, Joseph, Consultant, Woodward and Fondiller, Consulting Actuaries, 200 West 57th Street, New York 19, N. Y.
*Nov. 21, 1952	Resony, Allie V., Actuarial Department, Hartford Accident and Indemnity Co., 690 Asylum Ave., Hartford 15, Conn.
Nov. 19, 1932	Richardson, Harry F., General Manager, National Council on Compensation Insurance, 45 East 17th Street, New York 3, N.Y.
*Nov. 19, 1953	Richmond, Owen D., Supervisor, Tax Section, Businessmen's Assurance Company of America, 215 Pershing Road, Kansas City 2, Mo.
*Nov. 18, 1932	Roberts, James A., Accident and Group Actuarial Department, The Travelers Insurance Co., 700 Main St., Hartford 15, Conn.
*Nov. 18, 1927	Sarason, Harry M., Consulting Actuary, 1768 Maple Street, Pasadena 4, Calif.
Nov. 16, 1923	Sawyer, Arthur, (Retired), Box 106, Far Hills, N. J.
*Nov. 14, 1947	Scammon, Lawrence W., Actuary, Massachusetts Automobile Rating and Accident Prevention Bureau, Massachusetts Workmen's Compensation Rating and Inspection Bureau, 89 Broad Street, Boston 10, Mass.
*Nov. 14, 1947	Schwartz, Max J., Associate Actuary (Casualty), New York State Insurance Department, Albany 1, N. Y.
*Nov. 20, 1930	Sevilla, Exequiel S., Manager and Actuary, National Life Insurance Co. of the Philippines, Regina Building, P.O. Box 2056, Manila, Philippines.
*Nov. 20, 1924	Sheppard, Norris E., Professor of Mathematics, University of Toronto, Toronto 5, Canada.
Nov. 15, 1918	Sibley, John L., (Retired), 225 Amesbury Road, Haverhill, Mass.
*Nov. 16, 1951	Simon, LeRoy, J., Associate Actuary, Mutual Service Casualty Insurance Company, 1923 University Ave., St. Paul 4, Minn.
*Nov. 18, 1921	Smith, Arthur G., Associate Manager, New York Compensation Insurance Rating Board, Pershing Square Bldg., 100 East 42nd Street, New York 17, N. Y.
*Nov. 19, 1926	Somerville, William F., Secretary and Director, St. Paul-Mercury Indemnity Co., St. Paul 2, Minn.
*Nov. 18, 1925	Sommer, Armand, Vice President, Continental Casualty Co., and United States Life Insurance Co., 310 So. Michigan Avenue, Chicago 4, Ill.

ASSOCIATES

Admitted	
*Nov. 15, 1918	SPENCER, HAROLD S., (Retired), 8 Chelsea Lane, West Hartford, Conn.
Nov. 20, 1924	STELLWAGEN, H. P., Executive Vice-President, Indemnity Insurance Company of North America, 1600 Arch Street, Philadelphia 1, Pa.
*Nov. 16, 1923	STOKE, KENDRICK, Actuary, Michigan Mutual Liability Company, 28 W Adams, Detroit 26, Mich.
*Nov. 21, 1930	SULLIVAN, WALTER F., Assistant Actuary, State Compensation Insurance Fund, 450 McAllister Street, San Francisco 1, Calif.
*Nov. 19, 1953	THOMAS, JAMES W., Fire and Marine Actuarial Dept., The Travelers Insurance Company, 700 Main Street, Hartford 15, Conn.
*Nov. 21, 1919	TRENCH, FREDERICK H., Manager, Underwriting Department, Utica Mutual Insurance Co., 185 Genesee Street, Utica 1, N. Y.
*Nov. 20, 1924	UHL, M. ELIZABETH, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 18, 1932	WEINSTEIN, MAX S., Actuary, New York State Employees' Retirement System, 256 Washington Avenue, Albany 1, N. Y.
*Nov. 18, 1925	WELLMAN, ALEXANDER C., Vice-President, Protective Life Insurance Co., Birmingham, Ala.
*Nov. 21, 1930	WELLS, WALTER I., Director, Accident and Sickness Branch, State Mutual Life Assurance Co., 340 Main Street, Worcester 8, Mass.
*Nov. 16, 1951	WERMEL, MICHAEL T., Consulting Actuary, Woodward and Fondiller, 417 South Hill St., Los Angeles 13, Cal.
Mar. 21, 1929	WHEELER, CHARLES A., (Retired), 1023 Hillcrest Road, Ridgewood, N. J.
*Nov. 18, 1927	WHITBREAD, F. G., Vice-President, Reliance Life Insurance Company, Room 412, Farmers Bank Building, Pittsburgh 22, Pa.
*Nov. 19, 1948	WHITE, AUBREY, Ostheimer & Co., 1510 Chestnut St., Philadelphia 2, Pa.
*Nov. 16, 1939	WITTLAKE, J. CLARKE, Assistant to President, Business Men's Assurance Company, B.M.A. Building, Kansas City 10, Mo.
*Oct. 22, 1915	WOOD, DONALD M., Partner, Childs & Wood, 175 W. Jackson Blvd., Chicago 4, Ill.
*Nov. 18, 1937	WOOD, DONALD M., JR., Childs & Wood, 175 West Jackson Blvd., Chicago 4, Ill.
*Nov. 18, 1927	WOOD, MILTON J., Vice-President and Actuary, Life, Accident and Group Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Oct. 22, 1915	WOODMAN, CHARLES E., (Retired), The Brunswick, Waterville, N. Y.
*Nov. 22, 1934	WOODWARD, BARBARA H., The Reuben H. Donnelley Corporation, 305 East 45th Street, New York, N. Y.
*Nov. 17, 1950	WOODDY, JOHN C., Staff Actuary, American Telephone and Telegraph Company, 195 Broadway, New York 7, N. Y.
*Nov. 18, 1925	WOOLERY, JAMES MYRON, Vice-President and Actuary, Occidental Life Insurance Company, Raleigh, N. C.

OFFICERS OF THE SOCIETY

Since Date of Organization

Elected	*President*	*Vice-Presidents*	
1914-1915	*Isaac M. Rubinow	*Albert H. Mowbray	*Benedict D. Flynn
1916-1917	*James D. Craig	*Joseph H. Woodward	*Harwood E. Ryan
1918	*Joseph H. Woodward	*Benedict D. Flynn	George D. Moore
1919	*Benedict D. Flynn	George D. Moore	William Leslie
1920	*Albert H. Mowbray	William Leslie	*Leon S. Senior
1921	*Albert H. Mowbray	*Leon S. Senior	*Howard E. Ryan
1922	*Harwood E. Ryan	Gustav F. Michelbacher	Edmund E. Cammack
1923	William Leslie	Gustav F. Michelbacher	Edmund E. Cammack
1924-1925	Gustav F. Michelbacher	*Sanford B. Perkins	Ralph H. Blanchard
1926-1927	*Sanford B. Perkins	George D. Moore	Thomas F. Tarbell
1928-1929	George D. Moore	Sydney D. Pinney	Paul Dorweiler
1930-1931	Thomas F. Tarbell	*Roy A. Wheeler	Winfield W. Greene
1932-1933	Paul Dorweiler	William F. Roeber	*Leon S. Senior
1934-1935	Winfield W. Greene	Ralph H. Blanchard	Charles J. Haugh
1936-1937	*Leon S. Senior	Sydney D. Pinney	Francis S. Perryman
1938-1939	Francis S. Perryman	Harmon T. Barber	William J. Constable
1940	Sydney D. Pinney	Harold J. Ginsburgh	James M. Cahill
1941	Ralph H. Blanchard	Harold J. Ginsburgh	James M. Cahill
1942	Ralph H. Blanchard	Albert Z. Skelding	Charles J. Haugh
1943-1944	Harold J. Ginsburgh	Albert Z. Skelding	Charles J. Haugh
1945-1946	Charles J. Haugh	James M. Cahill	Harry V. Williams
1947-1948	James M. Cahill	Harmon T. Barber	Russell P. Goddard
1949-1950	Harmon T. Barber	Thomas O. Carlson	Norton E. Masterson
1951-1952	Thomas O. Carlson	Joseph Linder	Seymour E. Smith
1953	Seymour E. Smith	Dudley M. Pruitt	John A. Mills

Secretary-Treasurer

1914-1917....*C. E. Scattergood
1918-1953..........R. Fondiller
1953.............A. Z. Skelding

Editor†

1914.............W. W. Greene
1915-1917..........R. Fondiller
1918.............W. W. Greene
1919-1921....G. F. Michelbacher
1922-1923.......O. E. Outwater
1924-1932.......R. J. McManus
1933-1943........*C. W. Hobbs
1944-1953.......E. C. Maycrink

Librarian†

1914............W. W. Greene
1915...............R. Fondiller
1916-1921..........L. I. Dublin
1922-1924........*E. R. Hardy
1925-1937...........W. Breiby
1937-1947........T. O. Carlson
1948-1950..........*S. M. Ross
1951-1953 . Gilbert R. Livingston

Chairman—Examination Comm.

1949-1952.....Roger A. Johnson
1952-1953..John W. Wieder, Jr.

*Deceased.
†The offices of Editor and Librarian were not separated until 1916.

FELLOWS WHO HAVE DIED

The (†) denotes charter members at date of organization, November 7, 1914.

Admitted		Died
May 23, 1924	William B. Bailey	Jan. 10, 1952
†	Roland Benjamin	July 2, 1949
May 24, 1921	Edward J. Bond	Nov. 12, 1941
May 19, 1915	Thomas Bradshaw	Nov. 10, 19[illegible]9
June 5, 1925	William Brosmith	Aug. 22, 1937
†	William A. Budlong	June 4, 1934
Nov. 18, 1932	Charles H. Burhans	June 15, 1942
Feb. 19, 1915	F. Highlands Burns	Mar. 30, 1935
†	Raymond V. Carpenter	Mar. 11, 1947
Feb. 19, 1915	Gorden Case	Feb. 4, 1920
Nov. 23, 1928	Walter P. Comstock	May 11, 1951
†	Charles T. Conway	July 23, 1921
†	John A. Copeland	June 12, 1953
†	Walter G. Cowles	May 30, 1942
†	James D. Craig	May 27, 1940
†	James McIntosh Craig	Jan. 20, 1922
May 26, 1916	Frederick S. Crum	Sept. 2, 1921
†	Alfred Burnett Dawson	June 21, 1931
†	Miles Menander Dawson	Mar. 27, 1942
†	Elmer H. Dearth	Mar. 26, 1947
†	Eckford C. DeKay	Jul. 31, 1951
May 19, 1915	Samuel Deutschberger	Jan. 18, 1929
†	Ezekiel Hinton Downey	July 9, 1922
May 19, 1915	Earl O. Dunlap	July 5, 1944
†	Edward B. Fackler	Jan. 8, 1952
†	David Parks Fackler	Oct. 30, 1924
Feb. 19, 1915	Claude W. Fellows	July 15, 1938
†	Benedict D. Flynn	Aug. 22, 1944
†	Charles S. Forbes	Oct. 2, 1943
May 26, 1916	Lee K. Frankel	July 25, 1931
†	Charles H. Franklin	May 1951
Feb. 25, 1916	Joseph Froggatt	Sept. 28, 1940
†	Harry Furze	Dec. 26, 1945
Feb. 19, 1915	Fred S. Garrison	Nov. 14, 1949
†	Theodore E. Gaty	Aug. 22, 1925
May 19, 1915	James W. Glover	July 15, 1941
Oct. 22, 1915	George Graham	Apr. 15, 1937
Oct. 22, 1915	Thompson B. Graham	July 24, 1946
May 25, 1923	William A. Granville	Feb. 4, 1943
†	William H. Gould	Oct. 28, 1936
†	Robert Cowen Lees Hamilton	Nov. 15, 1941
Oct. 27, 1916	Edward R. Hardy	June 29, 1951
Nov. 21, 1919	Robert Henderson	Feb. 16, 1942
†	Robert J. Hillas	May 17, 1940
Nov. 15, 1918	Frank Webster Hinsdale	Mar. 18, 1932
May 23, 1924	Clarence W. Hobbs	July 21, 1944
Nov. 19, 1926	Charles E. Hodges	Jan. 22, 1937
Oct. 22, 1915	Lemuel G. Hodgkins	Dec. 26, 1951
†	Frederick L. Hoffman	Feb. 23, 1946
Oct. 22, 1915	Charles H. Holland	Dec. 28, 1951

FELLOWS WHO HAVE DIED—*Continued*

Admitted		Died
Nov. 21, 1919	Carl Hookstadt	Mar. 10, 1924
†	Charles Hughes	Aug. 27, 1948
Nov. 19, 1929	Robert S. Hull	Nov. 30, 1947
†	Burritt A. Hunt	Sept. 3, 1943
Nov. 28, 1921	William Anderson Hutcheson	Nov. 19, 1942
May 19, 1915	William C. Johnson	Oct. 7, 1943
Nov. 23, 1928	F. Robertson Jones	Dec. 26, 1941
Nov. 18, 1921	Thomas P. Kearney	Feb. 11, 1928
Nov. 19, 1926	Gregory Cook Kelly	Sept. 11, 1948
Oct. 22, 1915	Virgil Morrison Kime	Oct. 15, 1918
†	Edwin W. Kopf	Aug. 3, 1933
Feb. 17, 1915	John M. Laird	June 20, 1942
Feb. 19, 1915	Abb Landis	Dec. 9, 1937
Nov. 17, 1922	Arnette Roy Lawrence	Dec. 1, 1942
Nov. 18, 1921	James Fulton Little	Aug. 11, 1938
Nov. 23, 1928	Edward C. Lunt	Jan. 13, 1941
Feb. 19, 1915	Harry Lubin	Dec. 20, 1920
Nov. 16, 1923	D. Ralph McClurg	Apr. 27, 1947
May 23, 1919	Alfred McDougald	July 28, 1944
Feb. 15, 1915	Franklin B. Mead	Nov. 29, 1933
Apr. 20, 1917	Marcus Meltzer	Mar. 27, 1931
†	David W. Miller	Jan. 18, 1936
†	James F. Mitchell	Feb. 9, 1941
†	Henry Moir	June 8, 1937
Nov. 19, 1926	William L. Mooney	Oct. 21, 1948
Feb. 19, 1915	William J. Montgomery	Aug. 20, 1915
May 19, 1915	Edward Bontecou Morris	Dec. 19, 1929
†	Albert H. Mowbray	Jan. 7, 1949
†	Frank Mullaney	Jan. 22, 1953
†	Lewis A. Nicholas	Apr. 21, 1940
†	Stanley L. Otis	Oct. 12, 1937
Nov. 13, 1926	Bertrand A. Page	July 30, 1941
Nov. 18, 1921	Sanford B. Perkins	Sept. 16, 1945
Nov. 15, 1918	William Thomas Perry	Oct. 25, 1940
†	Edward B. Phelps	July 24, 1915
†	Charles Grant Reiter	July 30, 1937
†	Charles H. Remington	Mar. 21, 1938
Nov. 17, 1943	Samuel M. Ross	July 24, 1951
†	Isaac M. Rubinow	Sept. 1, 1936
†	Harwood Eldridge Ryan	Nov. 2, 1930
†	Arthur F. Saxton	Feb. 26, 1927
†	Emil Scheitlin	May 2, 1946
†	Leon S. Senior	Feb. 3, 1940
Nov. 24, 1933	Robert V. Sinnott	Dec. 15, 1952
April 20, 1917	Charles Gordon Smith	June 22, 1938
Feb. 19, 1915	John T. Stone	May 9, 1920
Feb. 25, 1916	Wendell Melville Strong	Mar. 30, 1942
Oct. 22, 1915	William R. Strong	Jan. 10, 1946
†	Robert J. Sullivan	July 19, 1934
Nov. 22, 1934	Walter H. Thompson	May 25, 1935

FELLOWS WHO HAVE DIED—*Continued*

Admitted		*Died*
Nov. 18, 1921	Guido Toja	Feb. 28, 1933
Nov. 15, 1935	Harry V. Waite	Aug. 14, 1951
Nov. 18, 1925	Lloyd A. H. Warren	Sept. 30, 1949
May 23, 1919	Archibald A. Welch	May 8, 1945
Nov. 19, 1926	Roy A. Wheeler	Aug. 26, 1932
†	Albert W. Whitney	July 27, 1943
†	Lee J. Wolfe	Apr. 28, 1949
†	S. Herbert Wolfe	Dec. 31, 1927
†	Joseph H. Woodward	May 15, 1928
†	William Young	Oct. 23, 1927
May 24, 1921	Arthur B. Wood	June 14, 1952

ASSOCIATES WHO HAVE DIED

Admitted		*Died*
Oct. 22, 1915	Don A. Baxter	Feb. 10, 1920
May 25, 1923	Harilaus E. Economidy	Apr. 13, 1948
Nov. 20, 1924	John Froberg	Oct. 11, 1949
Nov. 22, 1934	John J. Gately	Nov. 3, 1943
Nov. 14, 1947	Harold J. George	Apr. 1, 1952
Nov. 19, 1929	Harold R. Gordon	July 8, 1948
Nov. 20, 1924	Leslie LeVant Hall	Mar. 8, 1931
Oct. 31, 1917	Edward T. Jackson	May 8, 1939
Nov. 21, 1919	Rolland V. Mothersill	July 25, 1949
Nov. 19, 1929	Fritz Muller	Apr. 27, 1945
Nov. 23, 1928	Karl Newhall	Oct. 24, 1944
Nov. 18, 1927	Alexander A. Speers	June 25, 1941
Mar. 23, 1921	Arthur E. Thompson	Jan. 17, 1944
Nov. 21, 1919	Walter G. Voogt	May 8, 1945
May 23, 1919	Charles S. Warren	May 1, 1952
Nov. 18, 1925	James H. Washburn	Aug. 19, 1946
Nov. 17, 1920	James J. Watson	Feb. 23, 1937
Nov. 18, 1921	Eugene R. Welch	Jan. 17, 1945
Nov. 15, 1918	Albert Edward Wilkinson	June 11, 1930

SCHEDULE OF MEMBERSHIP, NOVEMBER 19, 1953

	Fellows	Associates	Total
Membership, November 21, 1952	158	133	291
Additions:			
By Election	3	...	3
By Reinstatement	...	...	...
By Examination	4	14	18
	165	147	312
Deductions:			
By Death	4	...	4
By Withdrawal	...	...	...
By Transfer from Associate to Fellow	...	4	4
Membership, November 19, 1953	161	143	304

CONSTITUTION

(As Amended November 17, 1950)

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 insurance, other than life 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 insurance.

Article III.—*Membership.*

The membership of the Society shall be composed of two classes, Fellows and Associates. Fellows only shall be eligible to office or have the right to vote.

The Fellows of the Society shall be the present Fellows and those who may be duly admitted to Fellowship as hereinafter provided. The Associates shall be the present Associates and those who may be duly admitted to Associateship as hereinafter provided.

Any person may, upon nomination to the Council by two Fellows of the Society and approval by the Council of such nomination with not more than one negative vote, become enrolled as an Associate of the Society, provided that he shall pass such examination as the Council may prescribe. Such examination may be waived in the case of a candidate who for a period of not less than two years has been in responsible charge of the Statistical or Actuarial Department of an insurance organization (other than life insurance) or has had such other practical experience in insurance (other than life insurance) as, in the opinion of the Council, renders him qualified for Associateship.

Any person who shall have qualified for Associateship may become a Fellow on passing such final examination as the Council may prescribe. Otherwise, no one shall be admitted as a Fellow unless recommended by a duly called meeting of the Council with not more than three negative votes, followed by a three-fourths ballot of the Fellows present and voting at a meeting of the Society.

Article IV.—*Officers and Council.*

The officers of the Society shall be a President, two Vice-Presidents, a Secretary-Treasurer, an Editor, a Librarian, and a General Chairman of the Examination Committee. The Council shall be composed of the active officers, nine other Fellows and, during the four years following the expiration of their terms of office, the ex-Presidents and ex-Vice-Presidents. The Council shall fill vacancies occasioned by death or resignation of any officer or other member of the Council, such appointees to serve until the next annual meeting of the Society.

Article V.—*Election of Officers and Council.*

The President, Vice-Presidents, and the Secretary-Treasurer shall be elected by a majority ballot at the annual meeting for the term of one year and three members of the Council shall, in a similar manner, be annually elected to serve for three years. The President and Vice-Presidents shall not be eligible for the same office for more than two consecutive years nor shall any retiring member of the Council be eligible for re-election at the same meeting.

The Editor, the Librarian and the General Chairman of the Examination Committee shall be elected annually by the Council at the Council meeting preceding the annual meeting of the Society. They shall be subject to confirmation by majority ballot of the Society at the annual meeting.

The terms of the officers shall begin at the close of the meeting at which they are elected except that the retiring Editor shall retain the powers and duties of office so long as may be necessary to complete the then current issue of *Proceedings*.

ARTICLE VI.—*Duties of Officers and Council.*

The duties of the officers shall be such as usually appertain to their respective offices or may be specified in the by-laws. The duties of the Council shall be to pass upon candidates for membership, to decide upon papers offered for reading at the meetings, to supervise the examination of candidates and prescribe fees therefor, to call meetings, and in general, through the appointment of committees and otherwise, to manage the affairs of the Society.

ARTICLE VII.—*Meetings.*

There shall be an annual meeting of the Society on such date in the month of November as may be fixed by the Council in each year, but other meetings may be called by the Council from time to time and shall be called by the President at any time upon the written request of ten Fellows. At least two weeks notice of all meetings shall be given by the Secretary.

ARTICLE VIII.—*Quorum.*

Seven members of the Council shall constitute a quorum. Twenty Fellows of the Society shall constitute a quorum.

ARTICLE IX.—*Expulsion or Suspension of Members.*

Except for non-payment of dues, no member of the Society shall be expelled or suspended save upon action by the Council with not more than three negative votes followed by a three-fourths ballot of the Fellows present and voting at a meeting of the Society.

ARTICLE X.—*Amendments.*

This constitution may be amended by an affirmative vote of two-thirds of the Fellows present at any meeting held at least one month after notice of such proposed amendment shall have been sent to each Fellow by the Secretary.

BY-LAWS

(As Amended November 21, 1952)

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 appointed by the President.

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.

The General Chairman of the Examination Committee, shall, under the general supervision of the Council, have charge of the examination system and of the examinations held by the Society for the admission to the grades of Associate and of Fellow.

Article IV.—*Dues.*

The Council shall fix the annual dues for Fellows and for Associates. The payment of dues will be waived in the case of Fellows or Associates who have attained the age of seventy years or who, having been members for a period of at least twenty years, shall have attained the age of sixty-five years. Fellows and Associates who have become totally disabled while members may upon approval of the Council be exempted from the payment of dues during the period of disability.

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 upon payment of arrears in dues, which shall in no event exceed two years.

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.

RULES REGARDING EXAMINATIONS FOR ADMISSION

1. Dates of Examination.*

Examinations will be held on the second Tuesday and following Wednesday during the month of May in each year in such cities as will be convenient for three or more candidates.

2. Filing of Application.

Application for admission to examination should be made on the Society's blank form, which may be obtained from the Secretary-Treasurer. No applications will be considered unless received before the fifteenth day of February preceding the dates of examination. Applications should definitely state for what parts the candidate will appear.

3. Fees.

The examination fee is $3.00 for each part or portion thereof taken, subject to a minimum of $5.00 for each year in which the candidate presents himself; thus for one part, $5.00, for two parts, $6.00, etc. Examination fees are payable to the order of the Society and must be received by the Secretary-Treasurer before the fifteenth day of February preceding the dates of examination.

4. Associateship and Fellowship Examinations.

(a) The examination for Associateship consists of four parts and that for Fellowship consists of four parts. A candidate may take any one or more of the four parts of the Associateship Examination. A candidate may present himself for part of the Fellowship Examination either (a) if he has previously passed the Associateship Examination and all preceding parts of the Fellowship Examination, or (b) if he concurrently presents himself for and submits papers for all unpassed parts of the Associateship Examination and all preceding unpassed parts of the Fellowship Examination. Subject to the foregoing requirements, the candidate will be given credit for any part or parts of either examination which he may pass.

(b) A candidate who has passed the Associateship Examination Parts I-IV prior to 1941, but who has not been enrolled as an Associate because of lack of the experience qualifications required by the examination rules effective prior to 1941, will be enrolled as an Associate upon passing the current Associateship Examination Part IV.

(c) An Associate who has passed no part of the Fellowship Examination under the Syllabus effective prior to 1941 is required, in order to qualify for admission as a Fellow, to pass the current Associateship Examination Part IV and Fellowship Examination Parts I-IV.

(d) A candidate who has passed one or more parts of the Associateship or Fellowship Examinations under the Syllabus effective prior to

*For 1954, changed to Thursday and Friday, May 13 and 14.

1948 will receive credit for the corresponding parts of the new Syllabus in accordance with the following table:

Parts Passed Under Old Syllabus (Effective Prior to 1948)			*Parts Credited Under New Syllabus (Effective in 1953)*	
Associateship,	Part	I	Associateship,	Part I—Section 2
"	"	II	"	" II
"	"	III	"	" I—Section 1
"	"	IV	"	" III
"	"	V	"	" IV
Fellowship,	Part	I	Fellowship	Part I
"	"	II	"	Parts III & IV—Section 15
"	"	III	"	Parts II & IV—Section 16

Partial examinations will be given to those students requiring same in accordance with the foregoing credits.

(e) A candidate who has passed one or more parts of the Associateship or Fellowship examinations under the Syllabus effective during the period 1948 to 1952 will receive credit for the corresponding parts of the new Syllabus effective in 1953.

5. Alternative to Passing of Fellowship Parts III and IV.

As an alternative to the passing of Parts III and IV of the Fellowship Examination, providing that the candidate presents himself in the same year for Parts I and II, or has previously passed Parts I and II, the candidate may elect to present an original thesis on an approved subject relating to insurance, other than life insurance. Such thesis must show evidence of ability for original research and the solution of advanced insurance problems comparable with that required to pass Parts III and IV of the Fellowship Examination, and shall not consist primarily of data of an historical nature. The thesis should be of a character which would qualify it for printing in the Proceedings. Candidates electing this alternative should communicate with the Secretary-Treasurer and obtain through him approval by the Committee on Papers of the subject of the thesis and also of the thesis. In communicating with the Secretary-Treasurer, the candidate should state, in addition to the subject of the thesis, the main divisions of the subject and the general method of treatment, the approximate number of words and the approximate proportion to be devoted to data of an historical nature. All theses must be in the hands of the Secretary-Treasurer before the second Tuesday in May of the year in which they are to be considered. No examination fee will be required in connection with the presentation of a thesis.

6. Waiver of Examinations for Associate.

The examinations for Associate will be waived under Article III of the Constitution in part or in whole only in case of those candidates who meet the following qualifications and requirements:

1. PARTIAL WAIVER

In case of a candidate who, for a period of at least two years preceding date of application, has been in responsible charge of the actuarial or statistical department of an insurance organization (other than a life insurance organization) and who has passed examinations of other recognized Actuarial Societies at least equivalent to Parts I, II and III of the Associateship examinations of this Society, the passing of such parts of the Associateship examinations of this Society will be waived upon approval of the Examination Committee.

2. FULL WAIVER

(a) The candidate shall be at least thirty-five years of age.

(b) The candidate shall have at least ten years' experience in actuarial or statistical work in insurance (other than life insurance) or in a phase of such insurance which requires a working knowledge of actuarial or statistical procedure or in the teaching of the principles of insurance (other than life insurance) in colleges or universities

(c) For the two years preceding date of application, the candidate shall have been in responsible charge of the actuarial or statistical department of an insurance organization (other than a life insurance organization) or shall have occupied an executive position in connection with the phase of insurance (other than life insurance) in which he is engaged, or, if engaged in teaching, shall have attained the status of a professor.

(d) "The candidate shall have submitted a thesis approved by the Committee on Papers. Such thesis must show evidence of analytical ability and knowledge of insurance (other than life insurance) sufficient to justify waiver of examinations."

Candidates electing this alternative should communicate with the Secretary-Treasurer and obtain through him approval by the Committee on Papers of the subject of the thesis, and also of the thesis. In communicating with the Secretary-Treasurer, the candidate should state, in addition to the subject of the thesis, the main divisions of the subject and the general method of treatment, the approximate number of words and the approximate proportion to be devoted to data of an historical nature.

LIBRARY

All students registered for the examinations of the Casualty Actuarial Society and all members of the Casualty Actuarial Society have access to all the library facilities of the Insurance Society of New York and of the Casualty Actuarial Society. These two libraries, with combined operation, are located at 107 William Street, New York 38, New York and are under the supervision of Miss Ruby Church.

These libraries contain the references listed in the Recommendations for Study. Students should obtain the necessary credentials from the Society's Secretary-Treasurer before applying for books.

The Insurance Society is responsible for postage and insurance charges for sending books to out-of-town borrowers, and borrowers are responsible for the safe return of the books.

SYLLABUS OF EXAMINATIONS

(Effective 1953 and Thereafter)

ASSOCIATESHIP

Part	*Section*	*Subject*
I	1	Descriptive and Analytical Statistics.
	2	Compound Interest and Annuities Certain.
II	3	Differential and Integral Calculus.
	4	Calculus of Finite Differences.
III	5	Probabilities.
	6	Life Contingencies, Life Annuities and Life Assurances.
IV	7	Policy Forms and Underwriting Practice
	8	Rate Making Methods. (Manual or Class Rates).

FELLOWSHIP

I	9	Insurance Economics.
	10	Insurance Law and Regulation.
II	11	Individual Risk Rating.
	12	Social Insurance.
III	13	Determination of Premium, Loss and Expense Reserves.
	14	Advanced Problems in Insurance Statistics.
IV	15	Advanced Problems in Insurance Accounting.
	16	Advanced Problems in Underwriting and Administration.

INDEX TO PROCEEDINGS

OF

Casualty Actuarial Society

VOLUMES XXXI TO XL INCLUSIVE

NEW YORK
1954

Acknowledgment

Over the years Mr. James S. Elston has made a most generous and substantial contribution to the publications of the Casualty Actuarial Society by his painstaking and efficient compilation of the three previous Indices of the Proceedings. Once again Mr. Elston has undertaken this considerable task and has prepared the following Index to Volumes XXXI through XL. The Council and the entire membership of our Society are indebted to Mr. Elston and our thanks and appreciation are hereby acknowledged.

SEYMOUR E. SMITH,
President

TABLE OF CONTENTS

Introduction

This Index covers volumes XXXI to XL of the Proceedings of the Casualty Actuarial Society, as bound by the Society, the Year Books having been bound as appendices in the corresponding volumes.

The subjects are listed in alphabetical order with items under each subject in chronological order except where further logical subdivisions appear desirable.

The names of all members admitted to the Society during the period covered by the Index are included with date of admission. The names of all members taking any active part are included with the offices held and all papers, discussions of papers, book reviews, actuarial notes and other known contributions made to the Proceedings by the members. The Index, therefore, constitutes a complete record during this period of the activities of the members in the Society except Committee memberships. Schedules of all Committee memberships are given on pages 41-48.

JAMES S. ELSTON.

GENERAL INDEX

An asterisk (*) following the designation Associate or Fellow means that the individual has been admitted by examination.

OFFICERS

Year Elected	*President*	*Vice-President*	*Sec'y-Treas.*	*Editor*	*Librarian*	*Council‡*	*Expiration of Council Term*
1944	Ginsburgh	Skelding Haugh	Fondiller	Maycrink	Carlson	†Perryman †Pinney †Blanchard *Barber *Constable *Cahill Kulp Smick Crane Sinnott Matthews Roeber Williams Williamson Tarbell	1945 1946 1948 1945 1945 (1945) 1945 1945 1945 1946 1946 1946 (1945) 1947 1947
1945	Haugh	Cahill Williams	Fondiller	Maycrink	Carlson	Valerius Cleary Goddard	1947 1948 (1947)
1946	Haugh	Cahill Williams	Fondiller	Maycrink	Carlson	Robbins Barber Mills Perryman	(1947) (1947) 1949 1949
1947	Cahill	Barber Goddard	Fondiller	Maycrink	Carlson	Carleton Matthews Kulp Elliott Masterson Farley	1948 1948 1949 1950 (1949) 1950
1948	Cahill	Barber Goddard	Fondiller	Maycrink	Ross	Graham Linder S. Smith	1951 1951 1951
1949	Barber	Carlson Masterson	Fondiller	Maycrink	Ross	Carleton Berkeley Constable Pruitt	1950 1952 1952 1952
1950	Barber	Carlson Masterson	Fondiller	Maycrink	Ross	Allen Kulp Mills	1953 1953 1953
1951	Carlson	Linder S. Smith	Fondiller	Maycrink	Livingston	A. Bailey Carleton Elliott	1954 1954 1954
1952	Carlson	Linder S. Smith	Fondiller	Maycrink	Livingston	Johnson Matthews McConnell	1955 1955 1955
1953	S. Smith	Pruitt Mills	Skelding	Maycrink	Livingston	Uhthoff Valerius Williams	1956 1956 1956

Chairman—Examination Committee
Johnson 1949-1952
Wieder 1952-1954

†Ex-Presidents.
*Ex-Vice-Presidents.
‡Elected members only except as indicated. Four year terms in the Council of Presidents and Vice-Presidents who have served during this decade which follow completion of their terms of office not shown.

COUNCIL

Elected Members

1944

Kulp	Smick	Crane	Sinnott	
Matthews	Roeber	Williams	Williamson	Tarbell

1945

Cleary	Goddard	Robbins	Sinnott	
Matthews	Roeber	Valerius	Williamson	Tarbell

1946

Cleary	Goddard	Robbins	Barber	
Mills	Perryman	Valerius	Williamson	Tarbell

1947

Cleary	Carleton	Matthews	Kulp	
Mills	Perryman	Elliott	Masterson	Farley

1948

Graham	Linder	S. Smith	Kulp	
Mills	Perryman	Elliott	Masterson	Farley

1949

Graham	Linder	S. Smith	Berkeley	
Constable	Pruitt	Elliott	Carleton	Farley

1950

Graham	Linder	S. Smith	Berkeley	
Constable	Pruitt	Allen	Kulp	Mills

1951

A. Bailey	Carleton	Elliott	Berkeley	
Constable	Pruitt	Allen	Kulp	Mills

1952

A. Bailey	Carleton	Elliott	Johnson	
Matthews	McConnell	Allen	Kulp	Mills

1953

A. Bailey	Carleton	Elliott	Johnson	
Matthews	McConnell	Uhthoff	Valerius	Williams

COMMITTEE ON ADMISSIONS

Year Appointed	Chairman	Members			
1944	Tarbell	Michelbacher	Constable	Van Tuyl	Perryman
1945	Tarbell	Michelbacher	Constable	Van Tuyl	Perryman
1946	Tarbell	Michelbacher	Constable	Van Tuyl	Perryman
1947	Tarbell	Michelbacher	Constable	Van Tuyl	Perryman
1948	Tarbell	Michelbacher	Constable	Van Tuyl	Perryman
1949	Tarbell	Michelbacher	Constable	Van Tuyl	Perryman
1950	Tarbell	Michelbacher	Constable	Van Tuyl	Perryman
1951	Cahill	Tarbell	Ginsburgh	Masterson	Perryman
1952	Cahill	Tarbell	Ginsburgh	Masterson	Perryman
1953	Cahill	Barber	Ginsburgh	Masterson	Perryman

AUDITING COMMITTEE

Year Appointed	Chairman	Members	
1944	Cameron	Crane	Graham
1945	Crane	Linder	Graham
1946	Crane	Linder	Graham
1947	Crane	Linder	Graham
1948	Crane	Linder	Graham
1949	Crane	Schloss	Graham
1950	Crane	Allen	Graham
1951	Crane	Allen	Matthews
1952	Crane	Allen	Matthews
1953	Crane	Allen	Matthews

EDITORIAL COMMITTEE

Year Appointed	Chairman	Assistant Editors	
1944	Maycrink	Kulp	Smick
1945	Maycrink	Kulp	Smick
1946	Maycrink	Kulp	Smick
1947	Maycrink	Kulp	Smick
1948	Maycrink	Kulp	Smick
1949	Maycrink	Kulp	Smick
1950	Maycrink	Kulp	Livingston
1951	Maycrink	Kulp	Harwayne
1952	Maycrink	Kulp	Harwayne
1953	Maycrink	Kulp	Harwayne

EDUCATIONAL COMMITTEE

Year	Chairman	Members				
1944	Carlson	Kulp	Lyons	Valerius	Hooker	Masterson
1945	Carlson	Kulp	Lyons	Valerius	Cameron	Masterson
1946	Carlson	Kulp	Smick	Valerius	Cameron	Masterson
1947	Carlson	Kulp	Smick	Valerius	Peters	Masterson
1948	Bailey	Kulp	Smick	Valerius	Peters	Masterson
1949	Berkeley	Kulp	Smick	Johnson	Bailey	
1950	Berkeley	Kulp	Smick	Johnson	Bailey	
1951	Berkeley	Kulp	Longley-Cook	Pruitt	Bailey	Wieder
1952	Berkeley	Kulp	Longley-Cook	Pruitt	Bailey	Wieder
1953	Berkeley	Kulp	Longley-Cook	Carleton		Wieder

EXAMINATION COMMITTEE

			FELLOWSHIP			ASSOCIATESHIP		
Year	General Chairman	Vice Chairman	Chairman	Members		Chairman	Members	
1944	Cleary		Mills	Goddard	Valerius	Elliott	Johnson	Berkeley
1945	Mills		Elliott	Smith	Berkeley	Johnson	Ross	Satterthwaite
1946	Elliott		Smith	Johnson	Berkeley	Ross	Carleton	Crouse
1947	Smith		Berkeley	Johnson	Ross	Crouse	Allen	Wieder
1948	Berkeley		Johnson	Crouse	Ross	Allen	Peters	Wieder
1949	Johnson		Ross	Crouse	Allen	Wieder	Peters	Uhthoff
1950	Johnson		Crouse	Peters	Wieder	Uhthoff	Schloss	Wolfrum
1951	Johnson	Wieder	Peters	Schloss	Uhthoff	Wolfrum	Resony	Salzmann
1952	Wieder		Uhthoff	Schloss	Wolfrum	Resony	Hope	Salzmann
1953	Wieder		Schloss	Resony	Wolfrum	Hope	Hazam	Petz

COMMITTEE ON PAPERS

Year	Chairman	Members		Editor Ex-Officio
1944	Matthews	Dorweiler	Blanchard	Maycrink
1945	Matthews	Dorweiler	Blanchard	Maycrink
1946	Matthews	Dorweiler	Blanchard	Maycrink
1947	Matthews	Valerius	Blanchard	Maycrink
1948	Matthews	Valerius	Blanchard	Maycrink
1949	Valerius	Barter	Goddard	Maycrink
1950	Valerius	Barter	Goddard	Maycrink
1951	Valerius	Williams	Goddard	Maycrink
1952	Valerius	Williams	Goddard	Maycrink
1953	Goddard	Rodermund	McConnell	Maycrink

COMMITTEE ON PROGRAM

Year	Chairman	Members				
1944	Ginsburgh	Skelding	Haugh	Cahill	Kelly	Fondiller
1945	Haugh		Williams	Cahill	Kelly	Fondiller
1946	Haugh		Williams	Cahill	Kelly	Fondiller
1947	Cahill		Barber	Barter	Goddard	Fondiller
1948	Cahill		Barber	Barter	Goddard	Fondiller
1949	Barber		Carlson	Constable	Masterson	Fondiller
1950	Barber		Carlson	Constable	Masterson	Fondiller
1951	Carlson		Linder	S. Smith	Constable	Fondiller
1952	Carlson		Linder	S. Smith	Constable	Fondiller
1953	S. Smith		Pruitt	Mills	Skelding	

COMMITTEE ON PUBLICATIONS

Year	Chairman	Members		
1944	Ginsburgh	Fondiller	Maycrink	Carlson
1945	Haugh	Fondiller	Maycrink	Carlson
1946	Haugh	Fondiller	Maycrink	Carlson
1947	Cahill	Fondiller	Maycrink	Carlson
1948	Cahill	Fondiller	Maycrink	Ross
1949	Barber	Fondiller	Maycrink	Ross
1950	Barber	Fondiller	Maycrink	Graham
1951	Carlson	Fondiller	Maycrink	Graham
1952	Carlson	Fondiller	Maycrink	Graham
1953	S. Smith	Skelding	Maycrink	Graham

SPECIAL COMMITTEES

COMMITTEE ON DEVELOPMENT

1948	1949	1950	1951
Williams	Williams	Williams	Williams
Carleton	Carleton	Carleton	Carleton
Kulp	Kulp	Kulp	Kulp
Pinney	Pinney	Pinney	Pinney
S. Smith	S. Smith	S. Smith	S. Smith

COMMITTEE ON MORTALITY FOR DISABLED LIVES

1944	1945
Dorweiler	Dorweiler
Marshall	Marshall
Kormes	Kormes
Barber	Barber
Carleton	Carleton
Graham	Graham
Pennock	Pennock

COMMITTEE ON SOCIAL INSURANCE

1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
Perryman	Perryman	Perryman	Perryman	Perryman	Ginsburgh	Ginsburgh	Ginsburgh	Ginsburgh	Ginsburgh
Barber	Barber	Barber	Barber	Barber	Barber			Perryman	Leslie, Jr.
Cahill	Cahill	Cahill	Kirkpatrick	Kirkpatrick	Kirkpatrick	Kirkpatrick	Kirkpatrick	Kirkpatrick	Kirkpatrick
Ginsburgh	Ginsburgh	Ginsburgh	Ginsburgh	Ginsburgh	Matthews	Matthews	Matthews	Matthews	Matthews
Kulp	Kulp	Kulp	Kulp	Kulp	Kulp	Kulp	Kulp	Kulp	Kulp
Williamson	Williamson	Williamson	Williamson	Williamson	Williamson	Williamson	Williamson	Williamson	Williamson
Farley	Farley	Farley	Farley	Farley	Farley	Farley	Farley	Farley	Farley

COMMITTEE ON (COMPENSATION AND LIABILITY) LOSS AND LOSS EXPENSE RESERVES

1947	1948	1949	1950	1951	1952	1953
Linder	Linder	Linder	Linder	Linder	Linder	Linder
Barber	Barber	Barber	Barber	Barber	Barber	Barber
Carleton	Carleton	Carleton	Carleton	Carleton	Carleton	Carleton
Crane	Mills	Mills	Mills	Mills	Mills	Mills
Masterson	Masterson	Masterson	Masterson	Masterson	Masterson	Masterson
Montgomery	Skillings	Skillings	Skillings	Skillings	Skillings	Skillings
Pruitt	Pruitt	Pruitt	Pruitt	Pruitt	Pruitt	

COMMITTEE ON STATUTORY DISABILITY INSURANCE			COMMITTEE ON PROSPECTUS	RESEARCH COMMITTEE	COMMITTEE ON MEMBERSHIP
1949	1950	1951	1949	1953	1953
Perryman	Perryman	Perryman	Mills	Pruitt	Cahill
Carleton	Carleton	Carleton	Clarke	Brown	Barber
Haugh	Haugh	Haugh	Elliott	Doremus	Carlson
Masterson	Masterson	Masterson		Hughey	Ginsburgh
Williams	Williams	Williams		Leslie	Masterson
				Rosenberg	Mills
				Uhthoff	Perryman
				Williams	
				Wolfrum	

Casualty Actuarial Society

THE PROCEEDINGS

Number	Volume	Pages	Date
61	XXXI	1-88	Nov. 1 1944
62	XXXII	1-190	Nov. 16 1945
63	XXXIII	1-118	Nov. 22 1946
64	XXXIV	1-134	Nov. 14 1947
65	XXXV	1-105	Nov. 19 1948
66	XXXVI	1-152	Nov. 18 1949
67	XXXVII	1-34	May 22 1950
68	XXXVII	35-142	Nov. 17 1950
69	XXXVIII	1-84	May 10-11 1951
70	XXXVIII	85-270	Nov. 16 1951
71	XXXIX	1-12	May 26-27 1952
72	XXXIX	13-128	Nov. 21 1952
73	XL	1-33	May 21 1953
74	XL	34-93	Nov. 19 1953

YEAR BOOKS

Number	Bound with Volume	Pages	Title	Date
24	XXXI	1-31	1945 Year Book	Feb. 1, 1945
25	XXXII	1-32	1946 " "	Feb. 1, 1946
26	XXXIII	1-32	1947 " "	Feb. 1, 1947
27	XXXIV	1-32+25	1948 " "	Feb. 1, 1948
28	XXXV	1-32	1949 " "	Mar. 1, 1949
29	XXXVI	1-32	1950 " "	Jan. 16, 1950
30	XXXVII	1-32	1951 " "	Jan. 16, 1951
31	XXXVIII	1-32	1952 " "	Feb. 15, 1952
32	XXXIX	1-28+25	1953 " "	Feb. 15, 1953
33	XL	1-32	1954 " "	Jan. 25, 1954