PROCEEDINGS

OF THE

Casualty Actuarial Society

ORGANIZED 1914

PAUL DORWEILER
PRIVATE LIBRARY
1938-1939
P. D.
No. ....

Volume XXV
Number 51—November 17, 1938
Number 52—May 19, 1939
1939 Year Book

ERRATA

Page 205, line 25. "Air" should be "a".

Page 209. The title of the committee of which Mr. Blanchard is chairman should be, Committee on Estimate of Cost of Automobile Accident Compensation.

Page 281. The name of Gregory C. Kelly should appear in the list of Fellows.

Page 287. D. R. Uhthoff should have been credited with having passed Part II of the Associateship examinations.

Printed for the Society by
GLOBE PRINTING COMPANY, Inc.
161 MAIDEN LANE
NEW YORK, N. Y.

CONTENTS OF VOLUME XXV

PAGE

ADDRESS OF THE PRESIDENT, LEON S. SENIOR:
"Experience Rating on the Road to Reform" 1

ADDRESS OF THE PRESIDENT, FRANCIS S. PERRYMAN:
"The Casualty Actuary" 291

PAPERS PRESENTED NOVEMBER 17, 1938:
I. "Surety Rate-Making"—Edward C. Lunt 16
II. "Aviation Insurance"—Barbara H. Woodward 81
III. "Watch Your Statistics!"—G. F. Michelbacher 97
IV. "Tables Adapted for Machine Computation"—Francis S. Perryman 121
V. "Problems in Relation to Contractual Liability Insurance"—J. W. Ainley 151

PAPERS PRESENTED MAY 19, 1939:
I. "Additional Index Numbers of Compensation Insurance Rate Levels"—Nels M. Valerius 298
II. "Federal vs. State Supervision of Insurance"—Rainard B. Robbins 313

DISCUSSION OF PAPERS READ AT THE PRECEDING MEETING 168, 339

INFORMAL DISCUSSION:
Surety Rate-Making—An Approach to the Subject 180
Premiums and Loss Reserves for Casualty and Bonding Insurance—Survey and Criticism of Present Methods and Suggestions for Improvement 366

REVIEWS OF BOOKS AND PUBLICATIONS 209, 388

ADDRESSES AT THE SOCIETY'S DINNER, NOVEMBER 17, 1938 233

CURRENT NOTES 246, 431

LEGAL NOTES 252, 439

OBITUARY 271

CASUALTY ACTUARIAL SOCIETY:
Officers, Council, Committees and Members 277, 466
Minutes of Meeting, November 17, 1938 284
Minutes of Meeting, May 19, 1939 473

INDEX, VOLUME XXV 477

1939 YEAR BOOK 483

NOTICE

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

"It is only in marriage with the world that our ideals can bear fruit; divorced from it, they remain barren. But marriage with the world is not achieved by an ideal which shrinks from fact, or demands in advance that the world shall conform to its desires."

—*Bertrand Russell.*

"The more readily we admit the possibility of our own cherished convictions being mixed with error, the more vital and helpful whatever is right in them will become."

—*Ruskin.*

VOL. XXV, PART 1 NO. 51

PROCEEDINGS

NOVEMBER 17, 1938

EXPERIENCE RATING ON THE ROAD TO REFORM

PRESIDENTIAL ADDRESS BY LEON S. SENIOR

Experience holds the cautious glass
To shun the breakers, as I pass,
And frequent throws the wary lead
To see what dangers may be hid. . . .
Experience joined with common sense
To mortals is a providence.
—MATTHEW GREEN

I.

While on my vacation this past summer, I heard a country preacher tell his congregation—mostly farmers—that a nation's civilization is to be measured by the three A's. He explained that he did not have in mind the Agricultural Adjustment Act which was declared void by the Supreme Court. His reference was directed to Agriculture, Architecture and the Alphabet. He expressed the belief that the first two stand for a people's proficiency in industry and art, and the third as a symbol of its culture. To men of letters, the invention of the Alphabet is the greatest discovery of all time. The credit for that invention has been attributed to the Phoenicians and other Semitic nations who inhabited the Mediterranean littoral and that part of Asia Minor where the Euphrates runs through the Valley of Mesopotamia. From there, by gradual transition, it penetrated Greece, Rome and ultimately became the A-B-C of the Latin, Germanic, Slavic and Anglo-Saxon peoples. Through the medium of the Alphabet, we have inherited the thoughts and feelings of our ancestors expressed in a rich legacy, which includes the Old and New Testaments and the works of philosophers, writers and poets of all ages. What a poor world this would be without Goethe, Schiller, Milton, Dante and Shakespeare, to name only a few of the great minds in literature.

The ambition to write is something which many possess, but the gift is granted to only a few. Within the narrow bounds of my own experience, the number of men who can express their ideas in a form sufficiently impressive to gain the sympathy and interest of their readers is extremely limited. For an example of clear incisive style I direct attention to a book recently published by Mr. Edson S. Lott under the title "Pioneers of American Liability Insurance." This volume is a valuable contribution to the history of Casualty Insurance. I knew nine of the nineteen men portrayed by Mr. Lott and can testify to the skill and accuracy with which the author has treated his subject. These men possessed executive ability of a high order, they had profound confidence in the future of the business, and their pioneering work has served to create a foundation for a system of insurance which offers protection against legal liability to millions of policyholders in this country. The great progress in the last quarter of a century has demonstrated the solidity of that foundation.

We, too, in this Society, have had our pioneers who have built the mathematical foundation for the rate structure on which liability insurance must rest. Some day another "Uncle Edson" will present a group portrait of the nineteen men who have given the best in them to solve our intricate problems on a sound statistical basis. In this group will be found Downey, Rubinow, Ryan, Sullivan, Wheeler, Wolfe and Woodward. These seven outstanding Fellows, who have gone to their last reward, were large contributors to our progress. Many others living, who are now with us and who follow their footsteps, will continue to carry on the work in future years.

It may not be out of place, and I hope you will not regard it as presumption on my part, to remind you of the fundamental distinction between insurance cover against legal liability as distinguished from insurance cover against loss or damage to property. The function of liability insurance is to protect the policyholder against the sanctions imposed by law upon persons who employ labor, or who own and drive motor vehicles on public roads, or who by virtue of their operations create hazards which may result in bodily injury to members of the public. Some forms of liability insurance are compulsory by law; other forms are optional with the assured. Discussions relating to Workmen's

Compensation and Automobile Insurance usually involve points referring to compulsory and elective features. From the economic point of view, all forms of liability insurance are compulsory since the financial solvency of the person involved may depend on the adequacy and completeness of his insurance arrangements. I think it is quite true that more thought was given during the past twenty-five years to the scientific development of premium rates for liability insurance than for any of the forms of property insurance. This is due to the fact that the obligation to insure is prompted by economic forces and implemented by statutory provisions. No decent citizen wants to violate the law, and no prudent man is willing to endanger his financial status in the community.

II.

In the early days of liability insurance, attention was mainly directed towards the development of a system of schedule rating, which took into consideration the physical surroundings of the individual risk and attempted to forecast future results on the basis of present conditions. Ultimately this was found to be inadequate for several reasons. All types of operations do not lend themselves readily to physical rating. It is practically impossible to create a schedule to fit *contracting* risks. It is costly to make certain that full advantage is taken by the employer of the physical equipment and that safety measures are followed throughout the policy term. In spite of excellence of physical equipment, accidents of varying frequency and severity occur where least expected, and do not occur where operating conditions indicate that they should occur. It is impossible to convince an assured of the justice or propriety of a charge based on physical ratings when he can point to a long period of excellent experience. It is likewise difficult to justify to the underwriter the propriety of a credit in the face of excellent physical equipment, but a poor history of experience. These considerations called for a system that permits evaluation of experience of the individual risk as a basis for premium determination.

The history of experience rating can be traced back to a period prior to Workmen's Compensation, when the rivalry between two opposing schools of thought stirred a lively argument at each meeting of the liability underwriters. This rivalry continued until the adoption of Workmen's Compensation in New York. The statistical data under Employers' Liability did not lend itself to any rational system of experience rating because of the widely varying results in the settlement of damage suits and the lack of dependable data such as is now being collected by state and national bureaus. With the advent of Workmen's Compensation and the organization of central sources for gathering statistics, the opposition to experience rating lost its chief argument, and efforts in the way of study and research resulted in producing a formula that had as its basis a foundation in mathematics, supplemented by a set of administrative provisions to make the formula operative in practice. By dint of much labor and extensive debate, there emerged gradually the present system with its theory of credibility that gives recognition to the size of the risk, to adequacy of exposure expressed in terms of time and quantity, to the occurrence of normal as distinguished from excess losses, and to other factors of consequence to which I shall presently refer.

The subject of experience rating seems to have a special fascination for the members of the Society. The *Proceedings* include no less than twenty-five papers and discussions dealing with several phases of the problem. Some relate to the fundamentals of the theory and the mathematics of the formula; others deal with the general application of the formula in practice. The latter are of special interest to the underwriters in the Home Office and to the Agency force in the field, who are mainly interested in the practical questions of the day. It is very likely that they are in sympathy with the Cambridge toast, quoted approvingly by Lord Tweedsmuir when installed as Chancellor of the Edinburgh University. Said his Lordship: "God bless the higher mathematics and may they never be of the slightest use to anybody." Members of Actuarial Committees accept the blessing and disregard the wish. Theirs is the everlasting task to examine and re-examine our rating structure in order to make the system responsive to changes in the industrial conditions of the country. This frequent review is essential to your progress as members of a profession which must avoid the mental and spiritual atrophy which is the inevitable result of indifference and inactivity. Some of you are now engaged in the construction of a new experience rating plan and it may therefore be timely to submit a brief analysis of the present situation before it is finally decided to discard existing theories and methods, and proceed with new experimentations, the value of which will have to be proven by the test of time.

III.

Workmen's Compensation presented the opportunity for the building of an experience rating plan because of the definite benefits provided by such legislation. Loss experience then became subject to evaluation, making possible the distinction between individual and class-experience. Workmen's Compensation, being compulsory, became closely tied up with cost of production and thereby directed public attention to the subject of rates. In the early discussions opinion was evenly divided. Questions were raised whether this method of rating would be legal or practical, and whether it was to become a separate, self-sufficient form of procedure or a mere auxiliary to the physical rating plan. Time has proven the method to be legal, practical, and not dependent on any other system.

The point as to whether the size of the risk was a fundamental element was earnestly debated in the early conferences. The first analysis of that question may be found in Mr. Woodward's paper (*Proceedings,* Vol. II, page 359). In his discussion, Mr. Woodward lays emphasis on the fact that the deviation in the experience of the individual risk is made up of two parts—(1) hazard deviation; (2) chance deviation. He then states the fundamental theory concerning size in the following language:

> But the most useful fact to be observed in connection with the hazard deviation is that it grows increasingly important, relatively to the chance deviation, as the size of the risk measured by the payroll exposed, or preferably, by the expected loss, increases. . . .
>
> By far the most important property, however, of these deviations arising from chance is the fact that the percentage of deviation to premium (not the absolute amount of the deviation) varies inversely as the expected loss—that is to say, it becomes smaller and smaller as the pure premium exposed to risk increases. . . .
>
> It is because of this fact that when the expected loss is

> small the probable chance deviation is great, that an experience rating system purporting to be a measure of physical or moral hazard—that is, of the hazard deviation, is inapplicable to small and average-sized risks. In other words, for a small risk—and I do not undertake here to define exactly within what limits a risk is to be considered small—deviations due to chance so far outweigh deviations due to difference in physical or moral hazard that these quantities become almost incommensurable in magnitude. The only "experience rating" properly applicable to chance deviations must amount to nothing more or less than a system of partial self-insurance or its equivalent.

This led to the conclusion that experience rating can be concerned only with risks which are of sufficient size to present experience adequate to record the deviation from the standpoint of hazard, and that the system should not be invoked to measure deviation of risks of insufficient size where chance deviation is predominant.

Two years later, Mr. Whitney developed the principle of credibility, gave it mathematical form and color and established it on a firm foundation. He advanced two concepts—(1) it is to be expected that there will be a deviation on the part of the individual risk as compared with the average of all experience of the classifications to which the risk belongs; (2) and such deviation must be given cognizance in determining the rates for the individual risk. The theory as set forth by Mr. Whitney (*Proceedings,* Vol. IV, pages 274 and 275) reads in part as follows:

> In workmen's compensation insurance, some kinds of liability insurance, group insurance and possibly a few other types of insurance, the risk insured, and upon which a rate must be produced, affords an experience of its own, that is, the contingencies insured against are of sufficiently frequent occurrence so that the risk itself produces an experience having some evidential value. In such cases we have therefore both a class-experience and a risk-experience.
>
> The problem of experience rating arises out of the necessity, from the standpoint of equity to the individual risk, of striking a balance between class-experience on the one hand and risk-experience on the other.
>
> It is evident in the first place that the weight of the risk-experience will depend upon the risk-exposure. Other things being equal, the experience of that risk which has the larger exposure will be entitled to the larger degree of consideration.

> In the case of a very large risk the rate may with safety be based almost wholly upon its own experience; in the case of a small risk very little credence can be given to risk-experience and the rate must be based almost wholly upon the experience of the class.

The doctrine announced by Mr. Whitney eventually found expression in the "Z" formula and became incorporated in the experience rating plans now in force in most of the states. It is quite true, however, that the formula itself allows for a great deal of elasticity and its exact dimensions can be established only by the process of reconciling varied opinions on the extent to which credibility shall be given on basis of size. The application of the "Z" formula in practice is the most important element in experience rating and has proven to be fully consistent with the theory. If consistency is a jewel, then this must be regarded as the most precious part of the plan.

The valuation of losses presents a formidable problem. The present split of losses into normal and excess is founded on the theory that up to a certain figure the cost of any claim may be regarded as representing the normal result of an accident, whereas the cost in excess of that figure is the result of unusual factors and should not be charged to the risk in so great a measure as the normal portion. By giving less weight to the excess and greater weight to the normal, the policyholder is relieved of a larger share of a serious accident, which may be entirely fortuitous, than of the minor accidents which more clearly reflect the hazards of the risk. To a degree this split of losses recognizes the importance of accident frequency in measuring the deviation of the hazard of a particular risk from the average. A similar principle is applied with respect to "catastrophe" losses, the cost of any such loss being limited in the rating procedure to twice the average value of a death and permanent total case. In the process of valuation it is essential to have a fixed date so as to avoid fluctuations because of subsequent changes, but the rigor of the rule may be softened by exceptions, i.e., where the case is declared non-compensable, or where recovery is had from a third party prior to the expiration of the policy.

The debate on the use of actual cost as against average values has been going on for many years without a conclusion that would spell complete satisfaction to the underwriters or to the public. The present method is in the nature of a compromise. We use actual values, where available, and estimated, where not available, for all types of injuries except "death and permanent total" cases, which are valued on an average basis. The argument for average values is far more logical than for estimated or actual. It is pretty difficult to see why a temporary disability should be valued in one case at $500 and in another case at $1,000 in view of the fact that the term of disability is not a matter within the control of the assured, but is due to a variety of causes such as the skill of the physician or the subjective attitude of the patient. On the other hand, average values are not free from criticism. It seems harsh to provide the same value for a death case whether with or without dependents, but at least the harshness in this instance can be justified on the basis of public policy since the method avoids discrimination against married men who have dependents.

A fundamental point in any plan of experience rating concerns the question as to whether the plan shall be prospective or retrospective. By "prospective" we mean that the rates for the renewal policy shall be determined in advance on the basis of past experience. This fits in with the principle laid down by Patrick Henry—"I have but one lamp by which my feet are guided, and this is the lamp of Experience. I know no way of judging of the future but by the past." This is the same patriot who, in the revolutionary period of our history, declared on the floor of the Virginia Legislature that death was preferable to the loss of liberty. This declaration, regarded perhaps with cynicism in the modern political world, may yet serve as a slogan in the coming struggle between democracy and absolutism.

The opposition to the prospective method was based on the following points: (1) changes in technique and management might invalidate the past experience as an index for the future; (2) the use of past experience will work a hardship on the risk for the reason that recognition is not promptly given for improvement of hazard conditions; (3) losses cannot be brought down to a time sufficiently close to date of renewal and valuation must be deferred pending maturity of experience, especially for indeterminate cases which remain open for a long time, while the premium which is written on an estimated basis must await determination by payroll audit. On the other hand, the "retrospective" method, which may include the history of the latest policy year, has its weaknesses, i.e., rates cannot be published in advance and debits determined after expiration are difficult to collect. Besides, the problem of loss valuation becomes accentuated to a greater degree than under the prospective method. The authors of the new Retrospective and Supplementary Rating Plans confront these objections in a spirit of optimism under special contracts providing a novel form of coverage, the first having as its prime element partial self-insurance on what amounts to a cost-plus basis, while the second has for its background the deductible loss principle, the policyholder assuming liability for his normal losses and the company giving protection for all excess over and above the predetermined normal value. Only the future can disclose to what extent this optimism is warranted.

IV.

The research now being conducted in the hope of reforming the experience rating system is convincing of an attitude to take nothing for granted. The most stirring episode in "The Citadel," one of the few modern novels worth reading, occurs in the course of Andrew Manson's examination for an advanced degree in medicine. The examiner asked him, "What do you regard as the main principle . . . which you keep before you when you are exercising the practice of your profession?" After a pause the hero of the novel replies, "I suppose . . . I keep telling myself never to take anything for granted." This answer won a mark of 100%. Most of us are apt to take things for granted, forgetting entirely that all we have and all we know is a heritage from preceding generations. For such progress as we have made, we owe a debt of gratitude to the men, who by painstaking labor, have established a foundation for the business we are engaged in and for the Society of which we are members. It is even possible that posterity may find something for which to be grateful to us when they discover the evidence of our present civilization in the Time Capsule which was sunk to a depth of fifty feet beneath the site of the Westinghouse exhibition building at the New York World's Fair of 1939, particularly if such evidence should include a copy of the "retrospective" contract, providing cover against the liability of the World's Fair for injuries to workmen and members of the public. It is a matter of speculation whether this evidence will be the cause of amusement or admiration for the ingenuity displayed by the authors of the contract.

The proposed Multi-Split Rating Plan will probably bring about radical changes in the valuation of losses. The object is to emphasize the frequency of occurrence by discounting the individual loss claim where the actual incurred cost is in excess of a figure selected so that it will include the vast majority of compensable claims. It is also intended to limit the maximum rate effect by means of a stabilizing factor so calculated that the maximum increase resulting from the most costly case shall not increase the rate by more than 25%. While this proposal is still in a formative stage, it can be safely said that the theory of credibility will be retained by the use of the stabilizing element, and in the case of larger risks, as their size increases, by gradually introducing into the rating procedure the portion of the actual and expected losses previously omitted through the discounting process until, at a point where the premium of the risk is sufficiently large to qualify for self-rating, the full values will be used.

The mathematicians in our group receive little appreciation from the general public which has difficulty in concentrating on their symbols and theories. The underwriting world, which often finds it impossible to reconcile theory with practice, expects mathematical miracles to solve confusing problems. According to latest comments in the press, even chaos may be resolved by the application of mathematical principles. Professor Norbert Wiener is authority for the statement that we may look forward to the time when the study of mathematics will include the "Calculus of Chaos" described as a method of dealing with "utter confusion."

Experience rating is on the road to Reform, but the process of reformation should not be left entirely in the hands of mathematicians. We all greatly admire Mr. Perryman's efforts (*Proceedings,* Vol. XXIV, page 60) for the revision of the "Z" formula and his profound studies in the several variations of the formula based on a split plan, a no-split plan and a multi-split plan. He frankly concedes that his analysis gives no cognizance to the elements of Stability and Responsiveness, which presumably he is willing to leave to others engaged in underwriting and administrative work. These elements are of great importance to men who come in direct contact with the public and watch their reactions. We shall need their carefully considered opinions for any necessary changes in limiting or extending the swing of the plan, in lengthening or shortening the time period, in weighting the data on the basis of age, and in the formulation of administrative rules which give life and substance to the operation of the plan in practice.

V.

A change in the formula will not be sufficient to bring about complete reformation of experience rating. There is need for a thorough study of the procedure involved in the application of the formula to particular cases. A large share of the difficulties arising in experience rating are concerned with the rules of practice. To bring about a more perfect plan, it is therefore essential not only to study the theory, but also to examine the methods under which the theory is applied in practice. Theoretical discussions developed in the process of *a priori* reasoning may prove wholly unworkable in practice where the human element comes into play. In reconciling theory with practice, we must be careful to avoid inconsistencies that may result in confusion.

In applying the theory to an individual case, we must obtain factual knowledge and interpret the facts in a way to make them consistent with the theory. Facts are the raw material from which practical men evolve the finished product. Misinterpretation of the facts may lead to disastrous results. To be specific: We must ascertain that the risk has been correctly classified and that the classification to which the risk has been assigned carries an average rate determined on a sound statistical basis as representing the large bulk of risks under observation. An error in the classification of the risk will produce the wrong answer not only insofar as the individual risk is concerned, but will also serve to distort the experience of the classification to which the risk has been assigned, and of the classification to which it should have been assigned.

In our definition of the term "risk," we have endeavored insofar as possible to resolve any and all questions that arise as respects the title to the experience. I do not think we have been entirely successful. The usual definition includes "all operations of one assured within the state, regardless of whether such operations or any part of them are insured by one or several insurance carriers." In practice we have to consider the question as to what may constitute a legal entity, although we do allow for the combination of experience of two or more legal entities where there exists common ownership and control. In numerous cases the determination as to what experience shall be included and what shall be excluded becomes a judicial problem involving both questions of fact and law. Past experience may be good or bad. There is a motive to bring in facts favorable to its continuance or to its abandonment. The practice is to send a questionnaire to the responsible officers of the assured in cases where, because of reorganization, a plea is made either for the retention or deletion of the past experience. The questions must be so framed as to develop the truth and to avoid the suppression of truth. The questions must be adroit and yet avoid the shady character of a "pregnant negative," familiar to lawyers who seek to lay a trap for the unsuspecting witness. When the question takes the form, "Have you stopped cheating at cards?" an affirmative or negative reply, or even a refusal to give an answer, puts the witness in a hole and may result in a mistrial, as in a recent criminal case, or even in a complete miscarriage of justice.

The question arises, when is a change sufficiently material to justify the exclusion of past experience? In the normal operation of business, changes occur continually such as the replacing of partners or the transfer of stock from day to day. It is the change that has the character of a sudden and complete transfer of ownership and control that must guide the practice of exclusion. It must reflect such a substantial reversal of conditions as to involve a transfer of a majority (in New York two-thirds), of the proprietary interest, carrying with it a change in control as reflected in the Board of Directors.

Certain conditions in industry require that the rating plan be accommodated to their needs and circumstances. An illustration may be cited in the case of banks and trust companies. Most banks operate in a dual capacity. They conduct commercial banking operations, own and supervise property for their stockholders, acquired for their own business purposes or through foreclosure, and they also administer the property of estates in the capacity of fiduciaries. How shall the experience be treated? While the banks hold legal title to their own property and the properties of the trusts, the equitable title in the case of estates and trusts runs of course to the beneficiaries. At first it was the practice to combine all of the experience under one assembly. Later on the propriety of this had been questioned. There is little doubt that the experience of a bank as a commercial institution should be treated separately. How is the experience of the trusts to be treated? Shall each trust be treated separately or shall the experience of all trusts be combined? The practice in Public Liability is to keep the experience separate for each trust. This is justified by the fact that in Public Liability the hazard is governed by location. In Workmen's Compensation the separation of experience for each separate trust carries with it certain undesirable burdens in the form of special minimum premium charges. As a consequence, the banks and underwriters acting in conference decided to treat the experience of all trusts as a single unit, leaving the commercial operations also to be treated as a separate unit.

There are cases where reason refuses to follow the theory that a change in ownership justifies the exclusion of past experience. A notable example has come to my attention where for considerations other than economic, a utility company was obliged to sever one of its departments, transferring the entire management and personnel to a new corporation which took possession of it, lock, stock and barrel, leaving absolutely no tie of ownership as between the two corporations. The new corporation claimed the benefit of the past experience, relying upon the fact that its management and personnel were intact and that its operations had not changed one whit because of the transfer into new ownership. Under our definition of "risk," the claim for the past experience would be denied although, morally speaking, the claim for past experience has considerable merit.

In the process of translating the theory of experience rating into practice, the underwriter must satisfy himself on the following points: (1) Is the risk large enough to qualify?; (2) Does the history of the experience meet the rule on time element?; (3) Has the assured clear title to the experience?; (4) Is the risk properly classified?; (5) Has the payroll been correctly audited?; (6) Have the losses been valued in accordance with the standard method? And finally, the result of the calculation reflected in the rates must be presented in convincing form to the policyholder. The presentation should be made in concise popular language, avoiding complicated terms. One should not follow the example of the pedantic character in "Mr. Fortune's Maggot," who defines an umbrella as an article which, "when in use resembles the shell that would be formed by rotating an arc of curve about its axis of symmetry, attached to a cylinder of small radius whose axis is the same as the axis of symmetry of the generating curve of the shell. When not in use it is properly an elongated cone, but it is more usually helicoidal in form."

The work in which you are engaged requires continued extensive study and research so as to enable you to meet new problems that come to the front with surprising frequency. When the answer is found, it becomes our duty to spread the information to the public and to our agents. I am using the term "agent" in the generic sense. It is not restricted to the selling force. I intend to include within that term producers, underwriters, claim adjusters and, in fact, all persons who act in a representative capacity. *Qui facit per alium facit per se.* In this sentence is compressed the entire doctrine of agency. All companies operate through representatives in each branch of the business. The word of the agent is the word of the company. The act of the agent is the act of the company. No matter which branch or form of insurance they represent, they are all brothers under the skin and each one has to pledge loyalty, first to the company, and second to the particular branch of insurance he represents. The old proverb—"Whose bread I eat, his song I sing," quoted by the Commissioner of South Carolina and reported by Mr. Hobbs in his story of the debate on the floor of the National Convention of Insurance Commissioners, holds true in the field of insurance as it does in other lines of human activities. The point that requires emphasis is the great need for widespread education, so that our representatives may give the public a correct picture of the system under which our rates are derived and the effect which changes in the operation of law, fluctuation in wages, and other factors of industrial activity produce on insurance premiums. This education can be afforded through the means of popular papers expressing the problem in language of sufficient clarity and simplicity to make it easily understood by the layman who has not received technical education through the Actuarial Department.

VI.

When you elected me to the office of President, you conferred upon me a great honor and overlooked my shortcomings. I have enjoyed the work. The honor conferred greatly outweighs the sacrifice of time the duties involved. During the past two years we have made some progress in the solution of certain problems. We have organized committees to study fidelity and surety reserves, mortality of disabled lives, and the cost of automobile accident claims. We have received a number of valuable contributions on a variety of important topics of interest to our members. The formal written as well as the informal oral discussions that have taken place at our meetings, and were published in the *Proceedings*, have caused appreciative comments from the students in the business.

To my successor I shall hand over the affairs of the Society, now comprising 308 members, 179 Fellows and 129 Associates, with a feeling of pride and relief—pride in the progress that was made—relief from the burdens of the office. For myself, I am grateful for having had the privilege of presiding for two successive terms. I am particularly happy to claim credit as one of the original authors of the draft of our Constitution, which prohibits a third successive term for your President. As I step to the rear, I shall resume the service of a private in the ranks and I shall always cherish the hope and belief that this Society will grow in prestige and influence as the educational center for the American System of Liability Insurance.

SURETY RATE-MAKING

An Approach to the Subject

BY

EDWARD C. LUNT

Section Subjects

1. Almost a virgin field of inquiry.
2. Rate controversies numerous.
3. Adequate rates a vital necessity.
4. Origin of the present rating system.
5. State control of surety rates.
6. The theory of insurance rate-making.
7. Life, fire, and marine insurance.
8. Differences between suretyship and insurance.
9. Eight main classes of surety bonds.
10. Miscellaneous surety bonds.
11. An infinite variety of risks to be rated.
12. Certain surety-company lines excluded from this discussion.
13. No single rate theory applicable to all surety lines.
14. Objective differences between bonds and insurance risks.
15. Their contracts imposed upon sureties, but not upon insurers.
16. Many bonds uncancellable.
17. The contract incident of the bond of prime importance.
18. Suretyship more affected by business cycles than is insurance.
19. Surety experience data sometimes absent.
20. Surety premiums sometimes imperfectly measure the exposure.
21. Comparative loss possibilities.
22. Surety losses slow in maturing.
23. In some lines the selection is always against the surety.
24. Premiums not the sole resource in suretyship.
25. The indemnity of outside parties.
26. Collateral security.
27. The insurance rate theory and depository bonds.
28. The insurance rate theory and mortgage-guarantee bonds.
29. Bonds must be grouped for rate-making purposes.

30. Bonds written on a quasi-insurance basis.
31. The "service-charge" rate theory.
32. Intermediary rate classifications.
33. Fidelity rates.
34. Bankers' and Brokers' Blanket Bonds.
35. Contract Bonds.
36. Merit Rating.
37. How competition affects rate-making.
38. Rates are sometimes determined or limited by law.
39. Acquisition and other incidental costs.
40. The essence of it all.
41. The Towner Rating Bureau, Inc.
42. Interpretative analyses of loss statistics.
43. *Apologia pro libello suo.*

1. Almost a Virgin Field of Inquiry:

Although corporate suretyship has existed in the United States for sixty years as respects fidelity lines (indemnification for losses due to employees' dishonesty) and for forty-odd years as respects most of the other important branches of the business, very little printed material is available to anybody minded to make a study of surety rates. Mr. R. H. Towner, who founded the Towner Rating Bureau in 1909, and conducted it with brilliant success for twenty-eight years thereafter, is the outstanding authority on surety rates; and any bibliography on rate-making would consist of little more than citations to addresses of his, devoted primarily to broader aspects of suretyship but containing incidentally references to rates. In addition, state insurance departments have sometimes compiled tables of statistics showing premiums written and losses paid in various branches of suretyship. Almost always such exhibits have consisted merely of arrays of bare figures, with little or no comment or discussion of value in any thoroughgoing consideration of the theory of surety rate-making. This treatise, in fact, so far as the author knows, is the first *prolonged* effort in that direction (the word was selected because of its limited connotation). For that reason, if for no other, the author approaches his task with trepidation, half convinced in advance that he will view his completed work very much as Robert Louis Stevenson regarded a certain textbook. When the professor propounded a question to his brilliant pupil and the latter stated that he did not understand the question, the professor replied, "Why, Mr. Stevenson, that is the very language used in your textbook." "I daresay," countered Louis, "but surely you would not expect one to read a book like that."

2. Rate Controversies Numerous:

While thoughtful, well-reasoned studies of the theory of surety rate-making have been singularly lacking, as indicated, and while the rates recommended by the Towner Bureau have been adopted and maintained from the beginning with notable consistency, it is nevertheless true that specific rates have been at times subjected to severe criticism. Dissatisfaction among producers of surety business (agents in the field) has usually been based on rather superficial reasoning—the contention has been that the hazards involved in the given situations were clearly insufficient to justify the premium charged; while the more important and responsible criticisms emanating from state insurance departments or similar public authorities have commonly been premised on premium-and-loss statistics concerned only with the given territory and thus of limited probative value.

Few surety underwriters would deem it safe to gauge the accuracy of a given rate merely by one's general idea of the loss possibilities involved. That is so because plenty of bonds that would seem to most people to be surcharged with trouble are found by experience not to be particularly hazardous; while plenty of others that appear innocent enough at first turn out to be highly dangerous. An example of the first type of risk may be found in the license bonds that real estate agents must give in certain states—bonds running in favor of the general public and guaranteeing that the principals will not be guilty of misrepresenting facts to their clients or otherwise dealing unfairly with them. In their zeal to effect sales real-estate agents have been known to emphasize unduly the merits of a given piece of property and otherwise to breach a broad bond of the kind in question; and one would expect such bonds to show a high loss ratio. In fact, while one notable instance to the contrary could be cited, the experience for years has been favorable, for the most part, and the rate is low.

An example of the other kind may be found in assigned-accounts bonds. Merchants and manufacturers who have accounts owing to them will sometimes assign such accounts to a banker and borrow money from him on the strength of such security. The assignment is not made known to the borrowers of the debtor, who will pay the borrower in due course; and the bond frequently required by the lender in such cases engages that the borrower will turn over promptly to the lender any amount so received from the debtors. The bond may also guarantee that the borrower will assign to the lender none but genuine accounts. The principals on these bonds are commonly well-established and reputable business concerns, and the surety company sustains loss only if the principal is grossly dishonest and is willing to run the risk of a state's-prison term and of permanent business ruin. On general principles the chance of loss would seem to be small, particularly as lenders adopt elaborate safeguards to protect their interests in the assigned accounts. Yet the experience of the surety companies with these bonds has been such that many companies will not touch them any more, notwithstanding the extremely high premium rate in force.

3. Adequate Rates a Vital Necessity:

While it is of prime importance, of course, in every branch of insurance that rates shall be sufficiently high to keep the insurers solvent and yet not so high as to yield excessive profit to insurers, that is pre-eminently true of surety companies. That is so because there is a difference of vast practical importance between insurance companies and surety companies as respects the effect upon policyholders and bondholders of insolvency on the part of the carrier. As for actual losses sustained prior to the date of receivership and discovered in time to be made the basis of claims filable with the liquidator, there is no difference—policyholders of insurance companies and obligees of bonding companies are in like sad case. When, however, we look behind these immediate claims, and consider the effect of insolvency upon all other policyholders and all other obligees, we find that the latter are far worse off than the former. In most kinds of insurance the insolvency of the insurer, while causing some loss and much inconvenience to non-claiming insureds, does not as a rule work irreparable damage to them. If a fire company, for example, or one providing automobile liability insurance, falls by the wayside, non-claiming policyholders may lose a little premium, but they can quickly and easily procure equivalent insurance elsewhere. They have been temporarily inconvenienced, but that is all.

Nothing of the sort is true, generally speaking, of surety companies. When an old and large bonding company becomes insolvent and suddenly ceases to function, it will have outstanding thousands and thousands of contracts whereby under certain conditions, fulfilled in practice in numberless cases, it has agreed to pay enormous amounts of money to widows, wards, and many other classes of beneficiaries who will be grievously affected by the inability of the company to carry out its contracts. Some of these obligations, it is true, will be taken over by other companies—new suretyship will be substituted for the old. That is true at best, however, only of bonds actively in force on the date of insolvency: it is not true as respects the multitude of bonds that have expired at that time, so far as future liability is concerned, but under which losses may yet come to light sustained within the period of active liability and still subject to claims. As we shall see later, many types of bonds contain no cutoff provision—claims may be made at any time after the bond terminates as to future occurrences, until the Statute of Limitations bars recovery; and many thousands of such bonds will be latently in force when a surety company goes into liquidation.

It is the existence of these latter bonds, whose latent liability will never be assumed by anybody and whose beneficiaries will thus be left stranded, that makes the insolvency of a surety company so much more disastrous than that of an ordinary insurance carrier. When a fire company, for example, that has been insuring a certain house goes to the wall, it is easy for another company to take over the risk, because the house is standing and there is no question about prior losses. When a surety company fails the situation is totally different, because, as respects the great bulk of its business, *future* losses constitute only part of the risk assumed by a new company, and *past* losses, unknown at the date of insolvency but certain to come to light sooner or later, will necessarily be covered by any new carrier. That is why it is not always easy to procure fresh suretyship, when a bonding company fails, even as to risks in force and in good standing on the date of failure. It is quite impossible to procure coverage for the latent liability incident to the bonds issued by the insolvent company and terminated as to future losses on or before the date of insolvency: the beneficiaries of such bonds are helpless, without recourse to anybody, if losses come to light after the dead-line fixed by the liquidator for claim-filing has been passed.

How distressing and far-reaching are the results of surety-company insolvency, as respects even indemnifiable losses and without regard to those just considered that can never by any possibility be recovered, may be seen from the fact that not until September, 1938, more than five years after a certain company was taken over for liquidation, was any dividend paid to claimants; and then only 10% was paid to only a part of them. Holders of about 70% of the claims so far allowed have received nothing whatever up to this date (November 1, 1938). In the case referred to about thirty-five thousand claims were filed with the liquidator, of which thirty-two thousand have been passed on. While it is true that distribution to claimants was delayed by legal conflicts among creditors, liquidation of assets and determination of liabilities is always a long process in these situations. Incidentally it is of interest to note that, while the claims filed aggregated originally $250,000,000, it is expected that the amount of claims ultimately allowed will not much, if at all, exceed $30,000,000.

4. Origin of the Present Rating System:

That the importance of keeping surety companies solvent is realized by state insurance departments generally is shown by the way in which the Surety Association of America and the Towner Rating Bureau came into being. When only a few surety companies were operating, and there was business enough for all, competition stayed within bounds. Soon after the turn of the century, as more and more companies entered the field, there was no longer enough business to go around, and competition got completely out of control. The insurance commissioners became alarmed, particularly when their examinations of the companies revealed grossly inadequate reserves for losses in many cases and actual impairment of capital in not a few. Rate conditions were chaotic. "Such was the rivalry between the companies," wrote one commissioner, "that we found any number of risks that were either written for nothing or at a nominal premium."

Under such conditions and when the bonding companies were headed straight for disaster, a number of surety companies, perhaps upon the initiative of and surely with the warm approval of courageous and far-sighted state insurance officials, formed the Surety Association of America, November 12, 1908. All the leading bonding companies joined the Association, and the senseless, suicidal scramble for business at any price gave way to orderly competition. The replacement of the earlier guesswork system of independent rate-making with one based upon dependable data and sponsored by competent authority was, of course, the primary purpose of the Association; and that purpose was accomplished on October 1, 1909, when the Towner Rating Bureau was organized and began to promulgate rates to all Surety Association companies based upon the aggregate experience and the composite underwriting judgment of such companies. For about thirty years now both the Surety Association and the Rating Bureau have continued to function in their respective fields with noteworthy efficiency and success.

5. State Control of Surety Rates:

From the fact that almost all state insurance departments, with entire justification in the writer's opinion, have approved both the current system of surety rate-making and the practice of most bonding companies of quoting identical rates, it must not be inferred that public insurance authorities stop at that point, and sanction as a matter of course any and all rates that may be promulgated by the Bureau. Quite the contrary is the case. Supervising officials everywhere show a lively interest in rates, and not infrequently call upon the Bureau to justify given rates, by means of statistics or otherwise. Whether or not any specific law in the given state can be cited in support of such a position, all insurance commissioners, it may safely be asserted, deem it their duty to see to it that the rates charged by the surety companies are not unwarrantably high.

Fifty-eight companies were licensed as to surety lines in the state of New York in 1937, and ninety-odd percent, it is safe to say, of the bonding business of the country was done by those carriers. They were all, of course, subject to the supervision of the New York insurance department, as respects operations there. The New York law is quite specific as to the right and duty of the superintendent of insurance to examine surety rates and satisfy himself that they are fair to all concerned. Section 141-b, subdivision 6, of the New York Insurance Law reads—

> "It shall be the duty of the Superintendent of Insurance, after due notice and a hearing before him, to order an adjustment of the rates on any risks or class of risks whenever it shall be found by him that such rates will produce an excessive, inadequate, or unreasonable profit."

By virtue of the foregoing provision the New York Superintendent of Insurance reserves the right to approve all rates made by the Bureau. In Illinois, Kansas, Montana, New Mexico, New York, Minnesota, Oregon, Utah, Virginia, Vermont, West Virginia, and Wisconsin the Towner Rating Bureau files with the appropriate insurance official, in behalf of its subscribers, every rate recommended by it. The rates so filed are accepted without either approval or disapproval at the time of promulgation; although tacit approval may presumably be inferred if no exception is taken. In Virginia changes in rates may not be made until a certain legal procedure has been followed and a final approval of the proposed new rate has been so secured. While no rates are filed in the remaining thirty-five states, it is thought that Towner rates are used there as a matter of course by Bureau subscribers. It is understood, however, by all concerned, that conference rules and Bureau rates are not binding upon companies as respects a few "anti-compact" states.

6. The Theory of Insurance Rate-Making:

While, as we shall shortly see (cf. section 8), suretyship is not insurance, bonding companies are always regarded as insurance companies so far as state supervision of their activities is concerned. It is further true that both state officials and the public, in considering the propriety of surety rates, commonly use the same arguments and apply the same principles as those deemed controlling in the case of insurance rates in general. The present writer does not know upon what theory rates are made in most lines of insurance, his experience having been limited to the casualty and surety branches of the business. As respects the casualty lines he abandoned all hope of attaining even a kindergarten understanding of rates when he learned that they were based on kinematic geometry, barycentric calculus, and tables of logarithmic trigonometrical functions, showing log sines and tangents to every ten seconds of the quadrant to ten decimal places. Moreover, he rather doubted the worthwhileness of attempting to understand the theory of casualty rate-making in current use when he found that in only four of the last eleven years (virtually only three) had the casualty companies operating in the State of New York (and doing, no doubt, the great bulk of the casualty business of the country) made any underwriting profit, and that their total net underwriting losses in that period (1927-1937) had aggregated about forty-one million dollars. Such a result somewhat suggested that the learned casualty rate-makers had failed to include in their occult calculations some important element of Einstein's theory of relativity.

While it is true that the fidelity and surety figures in the same period showed an aggregate net loss of twenty-five and a half million dollars, such results were wholly out of line with the prior experience; and in the last three years of the period the bonding companies made a remarkable recovery, their net underwriting profit then aggregating forty-two million dollars, or 18.6% of their earned premiums in the three years 1935-37.

"He who knows but one language," says Goethe, "does not know even that one"; and it is doubtless true that one could understand surety rates better if one knew all about the rates for fire, life, marine, and other branches of insurance. Fortunately, however, it is not necessary for the purposes of our immediate inquiry to know much about these other rates. We are more concerned with the results produced by the given rates, however they are determined, and with the way in which such results are interpreted by public insurance authorities. In practice such authorities commonly proceed as follows: from tables of statistics covering a term of years and showing the actual experience of all the companies insuring a given hazard two items are selected as rate-basing points of pivotal importance—losses incurred and premiums earned. From the latter are deducted taxes, reasonable acquisition and managerial costs, and a fair profit. If the remainder is about equal to the losses incurred, the rates that produced the given premium fund are, as a whole, regarded as fair to all concerned. Any marked difference either way is deemed to justify a corresponding revision of rates.

7. Life, Fire, and Marine Insurance:

These three important lines of insurance exemplify the foregoing method of rate testing. People who survive pay the beneficiaries of life insureds who pass on; the owners of property that remains intact pay for that destroyed by fire; ships that arrive pay for those that never reach port. It is true, of course, that this last statement, frequently made in substance, requires qualification; because in all the three lines referred to the losses paid have previously to some extent been antecedently and anticipatorily collected upon the policies involved. Yet that statement would seem to be true, generally speaking. Anyway, as a practical matter and having in mind at the moment only the attitude of public officials who must approve insurance rates, it is apparently the case that so long as the premiums received in the given classification are sufficient to pay the losses and incidental costs chargeable to such classification and not much more, the rate situation is deemed satisfactory.

For reasons easy to understand such a method of appraising the propriety of rates has worked well in certain lines of insurance. It should work well wherever the conditions that produce the given results are stable and likely not to change abruptly, and especially when such changes as may occur are likely to be favorable from the standpoint of the insurer and to *improve* the experience. Life insurance is a conspicuous case in point, because the constant advance in medical science has affected profoundly and for the better the experience underlying the mortality tables concerned with life insurance rates. Numerous powerful therapeutic agents that save and prolong lives were unknown when the rates currently used (in part at least) by life actuaries were determined. The death rate per thousand of American white males is less than half what it was thirty years ago. In 1901 the life expectancy of Americans at birth was 49.24 years, while in 1935 (the latest year for which figures are available) a white girl born then in the United States was destined to reach an age of 64.72 years. Life underwriters, therefore, basing their rates in great part on tables recording an experience that is virtually certain to show continual improvement operate under an automatic margin of safety.

"Time and I against any two," said Philip II of Spain. Fire underwriters may feel similarly serene when confronted with bad breaks, because time is surely on their side. No conflagration of appalling magnitude has afflicted the fire companies of the United States for more than thirty years, and fire-prevention and fire-controlling facilities are all the time becoming more effective. Life, fire, marine, and various other types of insurance have nothing to fear from a method of rate-making based on an experience fairly certain to show continuous improvement.

What bearing has all this on our immediate problem? Because rates are shown by statistical tables embodying the experience of insurance operations to be dependable and satisfactory in the case of certain classes of *insurance,* must we conclude that the same process of rate testing is applicable to *suretyship?* Not in the least. That is so because suretyship is not insurance, and because it would clearly be unwise to make the inference suggested before we have ascertained what suretyship really is, and have considered whether or not it so far differs from insurance that rate-making principles appropriate to the latter cannot safely be applied to the former. Our next inquiry, therefore, may well concern this point.

8. Differences between Suretyship and Insurance:

The statement is frequently made, by both laymen and lawyers and even at times by our learned courts, that contracts of corporate suretyship are contracts of insurance. Even learned courts, however, cannot by mere decree make a thing what it isn't; and suretyship is certainly not the same thing as insurance. What they can do, and have done in countless cases, when the bond in suit was executed by a compensated corporation rather than by private sureties, actuated by motives of friendship or accommodation only, is to interpret the bond broadly and in such a way as to effectuate its primary indemnifying purpose, even at the cost perhaps of rather doubtful or at least ingenious reasoning—to treat the bond in that respect as if it were a veritable policy of insurance.

In fact suretyship and insurance differ markedly in a number of important ways. In the first place, there are only two parties to a contract of insurance, the insurer and the insured, while there are always three parties to a contract of suretyship—the obligee (corresponding to the insured in the other case), the principal or immediate obligor, and the surety or co-obligor (corresponding to the insurer). Secondly, an insurance contract does not ordinarily depend for its validity or existence upon any related or incidental contract, while an agreement of suretyship always has to do with some collateral contract—either an explicit, written contract or one imperatively implied in the given situation. So true is this latter, indeed, that if a contract of suretyship is intended and supposed to have been made, and if it is subsequently found that the presumed collateral contract did not in fact exist, the whole thing is off so far as the bond is concerned and the surety cannot be held.

Still another difference between suretyship and insurance—this one extremely important in practical underwriting—is that in the case of most kinds of insurance losses are absolute, generally speaking, and are never recoverable, while in the case of suretyship, as respects numerous classes of suretyship pure and simple, losses are theoretically impossible and in practice they should be relatively rare and small. It is an astonishing fact that this last difference, although fundamental and even antipodean, is not readily grasped by the bond-buying public. One may go further, indeed, and say that many insurance underwriters have difficulty in assimilating the idea. That comment, of course, has no applicability to any member of the Casualty Actuarial Society. Certain it is, however, that many a casualty underwriter outside this membership, when considering the advisability of writing a given bond, is so obsessed with the notion that a breach of the bond will mean a permanent loss that he fails to give proper weight to the element of safety involved in the obligation of the principal to keep the surety harmless. The writer has talked with many surety men about this peculiar and interesting point, and he has yet to find one who has not suffered (the word is used advisedly) from this regrettable deficiency in the underwriting equipment, otherwise above par, of our distinguished colleagues in the casualty field.

While the foregoing statements about suretyship concern bonds of every character (as distinguished from policies of insurance), they are particularly relevant to bonds of certain types, and they require qualification when applied to bonds of other kinds. It seems desirable, therefore, to define briefly at this point the various groups of bonds that have to do with the different branches of corporate suretyship.

9. Eight Main Classes of Surety Bonds:

a. *Fidelity Bonds*: Executives, tellers, bookkeepers, and all other employees of financial institutions are commonly required nowadays, as a condition precedent to admission to the staff, to furnish fidelity bonds—guarantees that they will be guilty of no dishonesty in the performance of their duties. The same thing is true, in diverse degrees of completeness, with the officers and other employees of public-service corporations, beneficial associations, fraternal orders, and a great variety of mercantile and manufacturing concerns. More and more, in every walk of life, are fidelity bonds coming to be regarded as a natural and essential incident of the given positions.

In this case, of course, the principal on the bond is the employee and the obligee is the employer. That is true, too, even in the numerous cases where no individual bond is issued in which an employee is named as principal, but where a single instrument covers the entire staff of the employer—a schedule fidelity, bankers' or brokers' blanket, commercial blanket, or blanket position, bond.

In 1937 the fidelity branch of the business produced about forty-eight percent of the entire surety volume of the bonding companies for that year.

b. *Public Official Bonds*: Almost everywhere persons holding public office are required by law to give a bond conditioned for their faithful performance of duties. Since the words "faithful performance" are always interpreted by the courts in an exceedingly broad way, these bonds are necessarily wide-open instruments. All the money of the political body that the official receives, or would receive if he discharged his duties properly, must be paid over or duly accounted for to such body; and if the official fails to do that, no excuse whatever, generally speaking, other than an act of God or the public enemy, will absolve the official or his surety from liability. It is undeniably true that when surety companies bond a public official their obligation includes a negligence bond, a fidelity bond, a theft policy, a burglary policy, a fire policy, a depository bond, and other kinds of insurance and suretyship. Public Official bonds provide about 7% of the entire surety premium fund.

c. *Contract Bonds*: These are instruments by means of which a surety company guarantees the performance of contracts in accordance with their specifications. Such bonds are as varied in character and loss content as are the multitudinous forms of contracts that people are all the time undertaking. They cover, for example, the construction of highways and viaducts, the digging of sewers and subways, the building of bridges and battleships, and so on to an indefinite extent.

When contracts are about to be awarded a frequent requirement is that each bidder shall file with his proposal a bond guaranteeing that he will furnish, in case the contract is given to him, a further bond conditioned for his performance of the contract in accordance with its terms. Bid bonds are thus embryonic contract bonds, and involve, prospectively and conditionally, all the hazards of the latter. Bid bonds, indeed, would be more important and more dangerous than contract bonds themselves, except for the fact that only one of all the bid bonds issued in connection with a given contract ever results in a final bond. They are more dangerous because one exceedingly important underwriting factor, information about competitive bids, that materially affects one's decision over the acceptance or rejection of a final contract bond is necessarily absent in the case of proposal bonds.

At one time contract bonds constituted the most important branch of the surety business, and produced about one-third of the entire premium fund. In recent years, however, the construction industry has been far from flourishing and the revenue derived from this source by the bonding companies has correspondingly declined.

d. *Bankers' and Brokers' Blanket Bonds*: These wonderful aggregations of suretyship and insurance, issuable in favor of bankers, stockbrokers, and many kinds of financial institutions, indemnify insureds for losses due to a wide variety of mischances, describable briefly and incompletely as dishonesty on the part of employees and general wrongdoing on the part of the outside public (larceny, theft, burglary, holdup, forgery, etc.). A dozen or more forms of these bonds, adapted to the particular needs of the various types of insureds, are available. This division of the surety business is now producing about twenty percent of the annual premium fund of American companies.

e. *Judicial Bonds*: Attachment, replevin, costs, supersedeas, and many other kinds of judicial bonds are required by lawyers in connection with litigation, as well as with legal matters not involving court procedure. From the moment a litigant begins to thread his tortuous way through the mazes of an interminable lawsuit until judgment is handed down in a court of last resort judicial bonds of some kind are likely to be required. While some of these bonds are simple instruments, easily comprehended, others are called for by complicated forensic situations that are hardly understandable by a layman, except perhaps after prolonged study, as regards their legal involvements and resultant loss possibilities. Judicial bonds are comparatively unimportant so far as volume of business is concerned, but they are hard to underwrite understandingly and successfully. They constitute only 5% or so of the entire volume.

f. *Depository Bonds*: The principals on these bonds are banking institutions organized under either Federal or state laws, and the condition of the bond is that the given bank or trust company will repay on due demand money deposited with it by the obligee, usually some state, city, or similar political body. At one time premiums from this source aggregated five or six million dollars a year. The experience ultimately became so disastrous that about all the companies withdrew from the field for a year or two. While some companies now write the line, on a pretty restricted basis, the premiums are now of negligible amount. Since the conditions as respects both sureties and principals are far from favorable to the growth of the business, this division of suretyship seems likely not soon, if ever, to attain its former importance. We mention it, however, because the experience has profound significance, as we shall see, in connection with our inquiry.

g. *Fiduciary Bonds*: These bonds are given by administrators, executors, guardians, conservators, testamentary trustees, and other like fiduciaries. They are primarily fidelity instruments—that is to say, the chief element of risk to the trust estate and to the surety company lies in the possible dishonesty of the executor, guardian, or other fiduciary. The bonds, however, involve vastly more than a mere fidelity hazard; and it is entirely true that a fiduciary may default, and his surety may suffer a heavy loss, when there has been absolutely no dishonesty or even bad faith of any kind or degree on the part of the fiduciary. An executor, for example, may invest his trust fund or a part of it in a way not authorized by law, with resultant loss to the estate; he must make good such loss to the estate, however well-intentioned he may have been, however innocent of any purpose to be false to his trust.

A fiduciary, therefore, must be much more than merely honest. He must show diligence and zeal in assembling the assets of the trust estate; he must be vigilant in protecting such assets after they have been collected; he must disburse them only as valid debts, court orders, or the will or trust deed may require; he must do everything in rigid accordance with the law governing the administration of estates, and ignorance of the law will not in the least absolve him from liability; and if he default as to any part of these comprehensive and unmodifiable obligations, whether or not such default is due to dishonesty, he or his surety must make good to the estate any resultant loss.

All fiduciary bonds fall within one or the other of two classes that present somewhat different problems as respects rate considerations. The first class embraces all those fiduciaries, such as administrators, executors, receivers and trustees in bankruptcy, and guardians *ad litem*, who merely liquidate the trust estate, assembling and distributing the net assets thereof, if any. The second class embraces those fiduciaries, such as committees of incompetents, guardians of minors and others under disability, and trustees under wills or deeds of trust, who not only assemble (or at least receive) the assets, but who also preserve and invest them in connection with current partial distribution. Bonds issued in behalf of these latter fiduciaries are more hazardous as a rule than bonds covering the first class, not only because the duties and obligations of the fiduciaries are likely to be more onerous in the latter case, but also and especially because the period of liability and consequent chance of adverse developments is usually much longer. The first class of bonds ordinarily remains in force for a comparatively short term. Administrators and executors, for example, commonly complete their work in a year or so. Fiduciaries of the second class, however, may obviously be years in discharging their trust.

The following three fundamental considerations apply to almost all fiduciary bonds:

(1) *Character of the fiduciary*: Since fiduciary bonds are primarily fidelity instruments, it follows that the character of the fiduciary is an underwriting factor of high importance. If, accordingly, the investigation of a proposed principal's character and career discloses unfavorable features, the bond will be rejected as a matter of course and without regard to other considerations. This point, however, is of theoretical rather than practical importance, because fiduciaries are altogether likely to be persons of excellent character. A testator selects his executor, and the probate court appoints the administrator, largely in both cases because the fiduciary is known to be a person of high character; and for like reasons other classes of fiduciaries are almost always desirable principals so far as their character is concerned. In practice fiduciary bonds are rarely rejected because of flaws in the personal credentials of the applicants.

(2) *Character of the fiduciary's attorney*: Underwriters attach great importance to the character and professional attainments of the attorney who is to act for the principal in the administration of the trust estate. That is so, of course, because of the fact that legal questions, sometimes of a rather complex and difficult nature, are all the time coming up in the course of the administration of the trust estate, and must be answered correctly at the peril of the fiduciary and his surety. So important is this underwriting factor in the judgment of many underwriters that they would much rather write a bond for a somewhat weak principal represented by a lawyer famous for his expert and careful probate practice than one for a strong principal represented by an attorney of mediocre talent. Hardly any underwriter would care to provide fiduciary

suretyship for a principal represented by an attorney of dubious reputation, however good the principal's own credentials might be. Fortunately there are legal directories that show with remarkable accuracy the standing of about all the attorneys in active practice in the country, except in the largest cities.

(3) *Joint Control*: An administrator or other fiduciary holds the legal title to securities and other assets, and so far as third parties are concerned he is the absolute owner thereof. If, therefore, he is permitted to have sole control of the assets, he may do with them what he will, and his surety will be helpless. A dishonest fiduciary, or even an honest but ignorant and incapable one, may easily under such conditions dissipate the trust estate. Experience has abundantly shown that under circumstances continually arising in practice fiduciary bonds cannot prudently be written unless the fiduciary will permit the surety to have joint control over the assets of the trust estate.

The securing of joint control is more or less a futile procedure unless such control be exercised vigilantly and continuously. Strange as it may seem, surety companies not infrequently suffer substantial losses because their joint-control representatives do their work in a careless, half-hearted manner, and consent to the unlawful and improper disposition of the trust funds. Since a surety is responsible not only for a fiduciary's intentional wrongdoing, but also for his errors and mistakes, regardless of his worthy motives, the extreme importance of this aspect of the matter is obvious.

While joint control is always acceptable, in many cases highly desirable, and under certain conditions absolutely essential, the circumstances are frequently such that joint control will be waived if the business cannot otherwise be secured. Where the fiduciary is a woman, however, or a mechanic, perhaps, presumably unaccustomed to business and legal affairs, or where the bond is a large one, or where the term of the bond is likely to continue beyond two or three years, most underwriters rarely feel able to write the bond without joint control.

h. *License and Permit Bonds*: The Federal Government and the several states to some extent, and towns and cities to a large extent, require persons who wish to engage in certain kinds of business (auctioneers, junk-dealers, and pawnbrokers, for example) or to do certain things (e.g., to excavate a street, place building material on sidewalks, install a swinging sign), first to file a license bond covering the given business or a permit bond authorizing the given act. This is an interesting and somewhat important field of suretyship, as a multitude of standard bonds of this class have long been in existence, and as new varieties are all the time appearing. To list them all would be like cataloging the Homeric ships. They range from grave to gay, from lively to severe. Embalmers, for example, and handlers of unclaimed dead bodies, must give bond in certain jurisdictions. So, in other places, must collectors of birds, nests, and eggs; oyster and clam dredgers; manufacturers and vendors of lightning rods; carriers of concealed weapons; dealers in hog-cholera serum; practicers of the "art, business or profession of fortune telling," the bond in the last instance indemnifying patrons for losses due to "theft or other unfair dealing" upon the part of the licensee.

10. Miscellaneous Surety Bonds:

The foregoing eight groups of bonds comprise the major lines of suretyship, and account for the bulk of the aggregate premium fund. In addition there are numerous special types of bonds, most of which could really be classified, because of their essential nature, with one of the major groups referred to, but which are oftener treated by themselves for underwriting and rate purposes as special risks. A few of them may be worthy of mention as follows:

a. *Liquor Bonds*: Everyone, generally speaking, who wishes to make or to handle any kind of intoxicating liquor or alcoholic compound must first obtain a permit to do so from some public authority, and must accompany such permit, before beginning operations, with a bond conditioned for compliance with the law concerned with the given permit. Numerous such bonds are required by the Federal Government, and the states that now permit the sale of alcoholic beverages (there are no longer any completely dry states) do so only on condition that manufacturers, distributors and dealers engaged in the liquor business furnish bonds of stipulated character and amount.

These bonds thus constitute a species of the License and Permit genus, but they are so important and numerous as to warrant separate consideration. While all the bonds are conditioned for compliance with the liquor law of the given jurisdiction, some of them specifically guarantee the payment of taxes. The hazard involved in the former obligation varies with the rigor of law-enforcement practice; and in the latter with the safeguards embodied in tax-collecting systems. Many other factors, however, affect powerfully underwriting results and rates in the case of these liquor bonds.

b. *Lost-Instrument Bonds*: When savings-bank books, certified checks, stock certificates, and the like are lost, destroyed, or stolen, the embarrassing situation thus created may often be relieved by the giving of a bond conditioned to indemnify the bank or other obligee for any damage that it may sustain by reason of the reissuance of the lost instrument.

The underwriting of these bonds may be said to hinge upon these three considerations: the character of the principal, the degree of negotiability of the missing security, and the financial responsibility of the principal. The character and general reputation for probity of the principal is of prime importance, because that determines the measure of dependence to be placed upon his or her explanation of the loss of the instrument. The second point is likewise of obvious underwriting importance. A missing registered bond, for example, unendorsed by the owner of record, is a comparatively safe subject for a lost-instrument bond, because of the many safeguards thrown around a change in ownership of such documents. A lost coupon bond, on the other hand, is a highly dangerous instrument to have at large, as possession of such a document is almost universally, and with good legal reason, considered satisfactory evidence of ownership.

The third consideration, financial standing of the principal, is highly important, of course; but this will rarely be a controlling factor in the underwriting of lost-instrument bonds, because the surety company's responsibility for the missing document continues indefinitely, while principals die or lose their fortunes. Sometimes collateral security is required as a condition precedent to the issuance of these bonds. It cannot be held forever, of course, but if the surety is so protected for a few years, the chance of trouble thereafter is thought to be slight.

Since the bank or other obligee of a lost-instrument bond is under no legal obligation to reissue the given instrument, it requires a bond of a most uncompromising nature—frequently one of unlimited amount and always one that continues the surety's liability until the statute of limitations or the finding of the lost instrument releases it. On their face the bonds would seem to be pretty hazardous: in fact, the experience has been good.

c. *"Blue-Sky Law" Bonds*: Forty-five states have passed laws intended to protect investors by stopping the sale of stock in "fly-by-night concerns, visionary oil wells, distant gold mines, and other like fraudulent exploitations"; and many of the states require dealers in securities to give bonds conditioned for compliance with such laws. While the laws vary greatly in the several states, with corresponding gradations of risk in the bonds, yet the hazard is abnormally high in almost all cases. Usually the bonds are quite uncancellable, or are at least of doubtful or difficult cancellability. The penalty of the bond is sometimes not the limit of the surety's liability—there may be successive recoveries of the penalty. Here, as in so many other cases continually arising in corporate suretyship, any company that writes such a bond for the given principal is virtually going into partnership with such principal in the latter's conduct of the bonded business.

d. *Custom House Bonds*: Numerous bonds must be given by importers in connection with the entry at custom houses of merchandise received from foreign countries. Only a small fraction of the numerous custom-house bonds issued daily present underwriting difficulties, the vast bulk of the business being exceptionally safe. This is so partly because the rigid rules of the customs service make the risk of loss or trouble almost negligible, and partly because the principals upon the bonds are usually business concerns of ample responsibility. A few types of custom house bonds, however, must be handled with circumspection; and once in a while rather heavy losses occur.

e. *Warehouse Bonds*: Warehouse bonds of several varieties, and similar grain-elevator bonds, virtually guarantee the validity of the documents evidencing the storage of the given merchandise.

Theoretically, such bonds would seem to be highly hazardous, and that is doubtless true in some cases. Frequently, however, the warehouses and elevators are operated under regulations refined to the last degree of efficiency and safety, so that error or fraud is well-nigh impossible. Moreover, the principals upon these bonds are likely to be concerns of the highest reputation and responsibility. These remarks apply, in a general way, to the large warehouses and elevator bonds given to Boards of Trade or Chambers of Commerce in places like Chicago, Milwaukee, Minneapolis, and Kansas City. The bonds called for by the United States Warehouse Act are regarded by most underwriters with similar favor (though with somewhat less) and for similar reasons—namely, because elaborate safeguards have been thrown about the business by law or internal regulation. A radically different situation is presented by what are known as "country elevators"—small institutions representing in many cases slight financial responsibility and not always conducted with good judgment. Numerous losses have been incurred, particularly in the Northwest, under warehouse bonds of this character.

11. An Infinite Variety of Risks to Be Rated:

The foregoing list of miscellaneous bonds could be indefinitely prolonged, and examples without number could be cited of bonds falling within the various classifications portrayed in section 9. It would be interesting to know how many different kinds of bonds there are—different in the sense that diverse underwriting and rate principles apply to them and must be separately developed. One would hardly venture to suggest even a rough approximation of the total number of classes of bonds that all-around surety executives must deal with and master as best they can; but they are as manifold as the leaves of Vallambrosa, and the number would surely mount up into the thousands. Even if one knew the number today, one would not know it tomorrow, because it is all the time changing, as new laws are passed, new bonds prescribed under existing laws, and so on.

It's no wonder that surety executives who are supposed to have all-embracing and infallible knowledge of every branch of suretyship envy their single-line brethren, and resemble the distinguished physician who lamented the fact that he could not replace his general practice with diseases of the nostrils. "Yes," commented a colleague, "but I wish that I could confine my cases to disorders of the *right* nostril."

The only man who knows all the answers in the surety business is a chap named Nemoscit who lives in Weissnichtwo.

12. Certain Surety-Company Lines Excluded from this Discussion:

We are concerned here primarily with surety rates, and with insurance rates only so far as they may help us determine how surety rates should be made. While the bonding companies limit their activities for the most part to the various divisions of the surety business, they do write a few insurance lines. Forgery coverage of various kinds, provided by all the bonding companies, constitute a conspicuous example; and some of the surety companies similarly write burglary, theft, and robbery insurance. This discussion has to do only with the surety business of the bonding companies. The division is made on the basis of the distinction between the two lines pointed out in section 8 above: if, in the given case, there is a principal, primarily liable, and if there is an incidental contract concerned with the instrument issued by the bonding company, we are dealing with an item of suretyship; otherwise it is a case of insurance. Bankers' and Brokers' Blanket Bonds, however, are included in our discussion, although some of the hazards covered thereunder are insurance risks.

13. No Single Rate Theory Applicable to All Surety Lines:

It seemed worth while to outline in sections 9 and 10, even at wearisome length, the main branches of the surety business, because without such a bird's-eye view of our subject it might not have been clear that no single principle of rate-making could possibly apply to so great a variety of risks, attended with underwriting hazards ranging from the negligible to the terrific. It is clear that bonds of certain types (e.g., a bond conditioned that the principal will pay by a named date a federal income tax, not disputed) could not prudently be written unless the surety were first secured with collateral or indemnity of assured value and dependability. Bonds of a totally different type, on the other hand (e.g., bonds permitting tobacconists to sell cigarettes), may be written freely, with no thought of collateral and with scant regard for the principal's financial responsibility. It seems clear that rate considerations differing radically in character apply to the two types of bonds mentioned. While those types stand at opposite ends of the scale, multitudinous intervening classes of bonds likewise represent risks of highly divergent character and subject to dissimilar rate considerations.

14. Objective Differences between Bonds and Insurance Risks:

It was seen in section 8 that suretyship differs markedly and fundamentally from insurance, and it was more or less inferable from the contrasting conditions there shown that a theory of rate-making applicable to insurance would not be equally appropriate, if at all so, to surety risks. We consider now, in the next eleven sections, certain differences between suretyship and insurance concerned with outward things. These differences are of underwriting and rate significance, and they further suggest that principles of rate-making deemed to be justifiably controlling in the case of insurance risks may not be applicable to bonds.

15. Their Contracts Imposed upon Sureties, but Not upon Insurers:

While insurance companies, generally speaking, are at liberty to draft themselves, in accordance with and with strict regard for their own best ultimate interests, the contracts that they make with the insuring public, that is not in the least true of surety companies as respects numerous types of bonds. Insurance companies, of course, could not hope to sell their product to the public unless the latter were at least fairly well satisfied with the quality of the insurance offered; but insurers nevertheless may include in their contracts reasonable limitations of various kinds upon their liability. In the case of certain, extremely important classes of bonds, however, sureties not only may not do anything of the kind suggested, but the contract that they must sign on the dotted line is prepared for them by the obligee, with sole regard for his own safety and advantage, and with no thought whatever of the surety. The latter has no voice in the form of the contract that it must execute, is not consulted about it, may not modify it to the extent even of relocating an errant apostrophe or deleting a comma.

As respects certain classes of bonds, to be sure, the foregoing statement is not literally true, because the bond executed by the surety company may in fact be prepared by its own legal staff. That is frequently so in the case of public official bonds, for example. Even then, however, the statements made in the preceding paragraph are true in essence and reality, because the bond prepared by the surety company is *controlled* by the law underlying it. Almost always that law requires the official to furnish a bond conditioned for the faithful performance of duties of his office; and any surety company that bonds an official under such circumstances will be deemed by the law to know all about the statute requiring the bond and to have issued its bond in compliance with such statute. Any words in the bond, therefore, which, if given weight, would limit in any manner or degree the bald obligation of the surety to guarantee faithful performance of duty on the part of its principal would be instantaneously and utterly annihilated by the court as superfluous and meaningless.

Similarly it is true that surety companies sometimes issue forms of contract bonds prepared in their own offices. Here, however, as in the case just considered, the obligee of the bond is the real author of the instrument. That is so because the condition of the bond is that the principal will perform the bonded contract in accordance with its terms and specifications; and the surety company, of course, has nothing to do with the preparation of that contract, and is powerless to change it in any way. Frequently, indeed, in practice the surety has no opportunity even to read the contract that it is bonding—a condition of things less alarming (and less reflective upon surety underwriters) than might appear, because in the cases referred to the precise terms of the contract constitute only one, and a comparatively minor one, of the numerous underwriting factors involved.

As respects judicial bonds, fiduciary bonds, most contract bonds, and numerous other types of suretyship, the surety company does not even see the bond until it is brought to it for execution; and any attempt on its part to change the instrument would be futile—

would indicate, indeed, that the underwriter involved required the attention of an expert alienist.

16. Many Bonds Uncancellable:

This point may well be considered in connection with that just discussed, because both mark important and fundamental differences in the practical operation of the two kinds of business under review, insurance and corporate suretyship. As respects many kinds of insurance risks (e.g., fire and most casualty lines) the insurer may usually cancel the given policy if minded to do so because of the experience or for some other reason. He may, indeed, withdraw altogether from some type of risk found to be undesirable, either by summary cancellation of outstanding policies or by discontinuing each of them at renewal dates.

Nothing of the sort is true of many surety lines. When the bond is once executed and delivered to the obligee, the surety is inescapably bound for the full term of the bond (sometimes many years), whatever may happen meanwhile and however dangerous to the surety the conditions may prove to be or may ultimately become. This feature of uncancellability characteristic of numerous surety lines, so strikingly different from most kinds of insurance, springs from the inherent nature of the obligation assumed by the surety, and follows inevitably from the given circumstances. It is obvious, for example, that a surety company could not reasonably expect to have a right to cancel a bond guaranteeing the performance of a given contract, when the bond had once been delivered in good faith to the contractee; or one conditioned for the payment of a judgment rendered in a lower court and made appealable only by virtue of the bond, when the bond had been delivered to the appellee. Neither the contractee nor the successful litigant would deem such bonds of value if they could be cancelled at the pleasure of the surety company. When a county treasurer, required by law to furnish an official bond as a condition precedent to being sworn in, once files his bond with the proper public authorities, the thing is done so far as the surety is concerned, and the door is closed forever upon the surety: of what use would the bond be to the treasurer, or to the people of the county, if the surety were at liberty at any time to nullify the will of the people and play havoc with the whole situation by cancelling the bond? In numerous similar cases it is and must be perfectly understood on both sides that the bond is absolutely uncancellable when the surety-company seal and superscription are once affixed to the instrument.

The fact that many kinds of surety bonds may not contain a cancellation provision surely has a bearing upon our main question: if two risks are identical as to underwriting characteristics and loss possibilities, and if the insurer in one case may discontinue the risk at pleasure but may not in the other, is it not clear that a higher rate may properly be charged in the latter case?

The only important exceptions to the rule of uncancellability prevailing in the surety business occur in the case of fidelity bonds, bankers' and brokers' blanket bonds, and a few other classes of risks, where the obligee of the bond will not be permanently or unjustly injured (though perhaps temporarily inconvenienced) if the surety company serves notice, in strict accordance with the terms of the given instrument, that at the end of a reasonable and stipulated period its liability under the bond as to future occurrences will cease.

17. The Contract Incident of the Bond of Prime Importance:

In discussing the difference between suretyship and insurance (section 8) we saw that agreements of suretyship were always and necessarily accompanied by contracts of some kind. While these incidental contracts are frequently unwritten, they are nevertheless real, invariably present, and highly important from an underwriting and rate point of view. A contract bond, of course, would be meaningless and could not exist without a corresponding contract; and we have already seen how extremely important the underlying, bonded contract is in the case of these instruments. While the connection between the incidental contract and the bond, in other types of suretyship, may not be immediately apparent at times, a little reflection will always reveal the existence and the importance of the contract. Fidelity bonds, for example, vary greatly in hazard with the nature of the contract between the principal and the obligee. A case in point may be found in the familiar consignee's bond—an instrument that guarantees faithful accounting by the principal of all merchandise entrusted to him by the obligee consignor. Obviously the terms of the agreement that the principal makes with the obligee have much underwriting and corresponding rate significance to the surety; and that is true even in cases where the surety does not guarantee that the consignee will fulfil in all respects the agreement with the consignor (when that is done we have a hybrid instrument—a cross between a contract and a fidelity bond), but only that he will be honest in his handling of the consigned merchandise and in his dealings generally with the obligee.

18. Suretyship More Affected by Business Cycles than Is Insurance:

All classes of business, including every type of insurance, are affected profoundly, of course, by the booms and depressions that succeed each other with fatal regularity in the annals of industry and finance. As respects insurance, however, such alternations of prosperity and reverses are reflected primarily in premium volume, and the prolonged, distressful slowing down of business activities does not in most lines affect acutely and directly loss ratios. On the other hand, virtually all classes of suretyship in a period of general business depression not only suffer a heavy diminution of premium volume, but in addition they sustain severe losses upon outstanding bonds as a direct result of the depression. These losses, to be sure, in some cases do not come to light until the worst is over as respects general business. As might be expected, and as the experience of the bonding companies shows with painful clarity, surety losses sustained in the course of or in consequence of a depression affect adversely the calendar-year loss ratios of the companies for years after the business tide has turned and recuperation is well on its way.

While the foregoing comments apply particularly to fidelity risks, to bankers' and brokers' blanket bonds, and to fiduciary instruments, where the bonded principals, finally entrapped by speculative losses, extravagant living, and the like, seek a way out of their financial troubles by methods that ultimately involve their sureties, other branches of the bonding business are likewise affected by sweeping reversals of industrial trends. In the important division of contract bonds, indeed, the surety companies are in special danger both when the general business tide is receding and when it is strongly advancing. When contracts are few and subject to fierce competition, and when as a consequence jobs are taken at prices unwarrantably low, defaults are numerous and surety companies must often pay the outstanding bills of their principals and in addition relet the unfinished contracts at a figure far in excess of the original price. When, on the other hand, the tide has suddenly turned and a period of activity and rising prices for materials and labor has set in, contractors who have taken on long-time jobs on the basis of the stagnant conditions prevailing at the time may find themselves in no position to complete the contracts, under the enlarged costs confronting them, except at heavy losses. Over and over again contractors and their sureties have come to grief because of unexpected rising costs.

When the conditions upon which tables of loss experience are compiled remain over a term of years fairly stable, as is true of life, fire, marine, and other types of insurance—including, though in a less degree, perhaps, the casualty lines—it is practicable and safe to base premium rates in large part on such tables; but when those conditions are decidedly unstable, as they are in the case of the surety lines, and are certain, indeed, to show violent fluctuations at recurring periods, it is completely impracticable and unsafe to forecast future losses on the basis of factors that are known to be strikingly inconstant.

The point discussed in this section received distressing emphasis a few years ago in the case of depository bonds (cf. section 27). It applies, however, to suretyship in general, and some of the most important branches of the business are affected profoundly by the general economic conditions incident to the long-term trends of trade and finance. Such inevitable evolutions of business always impair and may set at naught the normal results of even expert underwriting. That could hardly be said of most kinds of insurance—fire and life, for example—where premiums accrue and accumulate within planes of time not widely separated, and where the current and past tabulations of losses and other statistical exhibits represent full evidential values, and forecast ultimate results with substantial accuracy.

19. Surety Experience Data Sometimes Absent:

While it is doubtless true that situations more or less without precedent arise occasionally in most lines of insurance and particularly perhaps in the casualty lines, where rates must be made without the benefit of experience and on the basis of general reasoning, such conditions are thought to be of relatively rare occurrence in most branches of insurance. The mortality tables, for example, of human lives used by life insurance actuaries for rate-making purposes are matched by similar dependable material of value to underwriters in other kinds of insurance. Not infrequently, however, the bonding companies are confronted with demands for suretyship of a character so unusual that no experience statistics are anywhere available for underwriting use and rate guidance. The loss frequency incident to breaches of the new bonds must be determined by *a priori* reasoning—*conjecture*, perhaps, would be a better word for it. Once in a while, for example, some law will be enacted by the Federal Government or by some other political body by virtue of which bonds must be furnished of a type theretofore unknown. That has happened a number of times in connection with New Deal legislation. Only the other day calls went out from Washington for a number of very large and extremely hazardous bonds, to remain uncancellably in force for many years, guaranteeing, among any number of other comprehensive obligations, the maintenance of steamship service in accordance with rigidly defined labor and equipment conditions, to distant ports on routes prescribed by the Government. Where in the world could an underwriter, so far as experience goes, find help in an effort to rate such bonds?

The point considered in this section was exemplified in wholesale fashion at the outbreak of the Great War in Europe, as shown by this striking passage in a pamphlet written by R. H. Towner ("The Future of Corporate Suretyship," page 17):

> "As soon as the Allies established American credits enabling them to come into the American market for war material, corporate surety underwriters were overwhelmed with applications for the greatest variety of bonds guaranteeing new enterprises that had ever come to their desks. The Allied governments contracted in America for a vast variety and an immense quantity of things never before made by American

> firms, and demanded the fulfillment of these contracts with the greatest possible speed. To accomplish this the American contractors had to build new factories and new machinery as mere preliminaries to turning out the things themselves that were contracted for; and to hasten this the foreign governments advanced enormous sums to the contractors not only before delivery of the subject matter of the contract but even before the necessary factories and machinery were ready to begin manufacturing. Every day new forms of contract with new provisions drawn by the advisors of foreign governments were presented to surety companies for their guarantee. They were asked to guarantee the advances of money, the quality and quantity of things to be delivered, the time of delivery, the secrecy of plans and specifications and to underwrite a multitude of other provisions too various to be now recounted. And all this was presented to underwriters under the utmost pressure as to speed. Corporate suretyship was not then regulated as 'insurance' and fortunately the bonds guaranteed by surety companies were not required to be classified and rated in advance. It would have been utterly impossible because a new variety of obligation was usually encountered five or six times a week. Nevertheless, it is to the great credit of the corporate surety organizations of that day that through this welter of new demands as to which no 'experience' whatsoever was available, they proved capable of analyzing all this new and foreign business and of rating it and underwriting it successfully."

20. Surety Premiums Sometimes Imperfectly Measure the Exposure:

It would seem to go without saying that an insurer's compensation should vary directly with the extent of his exposure. In the case of fire insurance that end is effected by means of the well known 80% clause, adopted by the New York Tariff Association forty-four years ago and now in general use—a provision by virtue of which the insurer obtains a premium based on a reasonable proportion of the value of the property insured. In two of the major surety lines, fidelity and bankers' and brokers' blanket bonds, no such premium safeguard is feasible; and in practice underinsurance is so prevalent that it may almost be said to be the rule rather than the exception. While many big banks carry large blanket bonds and are thus adequately insured, not infrequently bank defalcations or robberies occur in amounts exceeding the suretyship in force. As respects ordinary fidelity risks, nothing is commoner in the experience of the bonding companies than the occurrence of dishonesty losses far in excess of the amount of insurance carried. Not long ago the Rating Bureau compiled a list of several hundred such instances. A church treasurer, for example, bonded for $50,000, stole nineteen times as much; a charitable-institution treasurer, bonded for $10,000, stole $139,000; a railway mail clerk, bonded for $1,000, stole $150,000; a textile-company cashier, bonded for $1,000, stole $155,000. Not long ago a bank in Charlestown, West Virginia, was wrecked because an officer, bonded for $25,000, got away with $500,000. It is interesting to note that insurance companies furnish many such examples among their own officers and employees: "Who is worse shod than the shoemaker's wife?"

It is true, of course, that in all the cases referred to the surety company obtained the full premium on the amount of its bond; and it is further true that the company in any given instance could ill afford to have paid the large loss sustained by the insured in return for the additional premium that would have been paid for an adequate bond. If, however, *all* fidelity principals were bonded in sufficient amount, the resultant aggregate premium fund would be vastly greater than it is now; and the final position of the surety companies, as respects these very important divisions of their business, would be much safer than it is now. It can hardly be doubted that fire companies have a distinct advantage over the bonding companies in the matter of underinsurance, and that point has a bearing upon the rate question.

21. Comparative Loss Possibilities:

Insurance policies, generally speaking (boiler insurance is a conspicuous exception), are of value to insureds *only* because they involve the possibility of loss to the insurer; and their value increases *pari passu* as such possibilities increase. The cost of the insurance, of course, is affected primarily and immediately by these same loss possibilities—the greater the chance of loss, the higher the insurance rate.

Is it the same with suretyship? Not in the least, as respects many types of bonds. Not only is it not true that the bond is desired because a loss is expected, but in many cases it is well nigh certain that no loss will ever occur to either principal or surety because of the issuance of the given bond. When the *Titanic* crashed into an iceberg off Newfoundland in 1912 hundreds of lost-instrument bonds were issued in behalf of owners of securities carried on the fated ship. The possibility of loss under those bonds was and clearly should have been a minor consideration in the determination of the rate charged for them. In numerous similar situations this possibility-of-loss factor, so extremely important in making insurance rates, is almost negligible in the case of some kinds of bonds. It is not in the least true, as respects them, as it is true of insurance generally, that the value of the thing sold, and the price correspondingly charged for it, is measured by or even indicated by the surety's expectation of loss.

22. Surety Losses Slow in Maturing:

In this respect suretyship differs markedly from most lines of insurance. Life companies, for example, continue to collect premiums as long as any given risk remains in force; and fire companies similarly know all the time just about where they stand as respects risks that are still in force and producing revenue and risks that have definitely and absolutely terminated, either without loss or with a known and fixed loss. The same thing is true in the case of certain types of casualty insurance; and much the same thing is true of the other casualty lines. While liability and compensation losses sometimes do not come to light until the period of active liability of the given policy has terminated, it is nevertheless true that casualty underwriters, in common with insurance underwriters generally, if they understand their business and put up loss reserves honestly and expertly, know pretty well at all times whether or not they are losing money on a given line of risks, and what their financial position is otherwise.

All the foregoing is either not true at all, or requires serious modification, in the case of most surety lines. As we have seen (section 15), the contracts executed by the bonding companies, as respects many important branches of the surety business, are prepared by obligees, with sole reference to the latters' rights and advantages. Under such conditions the contracts naturally contain none of the limitations and conditions which commonly form a part of insurance policies, and which, while deemed no more than fair to insurers, are of distinct value to the latter under loss conditions that frequently arise in practice. Insurance policies, for example, usually embody a cutoff provision—a requirement that the insured shall have only a stated, limited time within which to file claims after the policy has expired. No such provision can ever be found in surety bonds of the kind referred to; with the result that claims may be made under a given bond, for losses sustained within its term of active liability, years after the premium period has terminated—as long, indeed, as may be permitted by the Statute of Limitations controlling in the given situation. This consideration is by no means of mere theoretical importance, and the annals of the surety companies abound in cases where losses have turned up years after the given bond has been deadfiled and forgotten.

When the 18th Amendment became effective on January 16, 1920, a great variety of bonds were required by the Federal Government to insure compliance with the National Prohibition Law. Claims were made under such bonds years after the principals had ceased to use the permits that necessitated the bonds. Indeed, although the necessary thirty-six states had ratified the 21st Amendment, repealing Prohibition, by December 5, 1933, nearly five years ago, not even yet has the experience under these Prohibition bonds fully matured.

Public official bonds are particularly dangerous as to this point; and fiduciary bonds as well must sometimes be resurrected from ancient files because of greatly delayed claims. Any bonds conditioned for the payment of taxes may exemplify the point under discussion. Some years ago, for example, the Commonwealth of Pennsylvania imposed a tax of so much per gallon on sellers of gasoline, and required all operators and filling stations to furnish a bond guaranteeing the payment of the tax. Since the tax was payable every month, it was thought by underwriters at first that principals would be quickly brought to book and put out of business if they failed to pay the tax, and that losses under the bonds would hardly be large in any event. It failed to work out that way, and most companies, it is thought, lost money heavily (in proportion to the premiums received) on these bonds. Years after the bonds had expired, the companies were confronted with claims for unpaid taxes based upon audits and other administrative checks made so long after the gasoline was sold that nothing could be done by the surety companies in the way of salvage. In many cases their principals, by the time claim was made, had gone out of business altogether and disappeared for parts unknown.

Contract-bond claims usually come to light with painful promptness. Sometimes the first word of trouble is that the principal has decamped from the job, leaving the work only half done and the bills more than half unpaid. Yet the bond itself rarely contains any cutoff provision, and the claim-making period is almost always determined by the Statute of Limitations applicable to the given conditions. One notable example of delayed notice occurred in connection with bonds aggregating about five million dollars guaranteeing the construction of cantonments, arsenals, aviation stations, and the like for the Federal Government. About twenty enormous contracts were involved, all awarded soon after the United States declared war on Germany on April 7, 1917. Years after the contracts were completed—to the entire satisfaction of the contractee so far as the surety companies knew—suits were instituted by the obligee against the various principals and sureties on the bonds to recover claims aggregating more than fifty million dollars. The last suit was not begun until 1924; and it was not for some years thereafter that the surety companies interested were in a position to close their claim files.

23. In Some Lines the Selection Is Always Against the Surety:

Life companies examine their risks in advance and weed out any that fail to satisfy their underwriting requirements. Fire companies similarly reject, or accept at high rates, subnormal risks. Casualty companies see to it in numerous ways that they get at least average risks. So far is this from true in the case of certain surety lines that in the latter the selection is always, necessarily, and as a matter of course, against the surety: it is known in advance that the conditions, either generally or in certain important respects, actually favor a breach of the bond about to be written.

When, for example, a litigant has lost his suit in a lower court, and is permitted to try again in some higher tribunal if he will first furnish a bond conditioned for the payment of any judgment that may be rendered against him in the appellate court, the dice are loaded, so to speak, against the surety, since its principal has already lost once and will presumably have no better luck next time. The same thing is true of any other judicial bonds which must be given only because of a presumption by the law of guilt or error on the part of the applicant for the bond.

This point is exemplified most importantly perhaps in the great department of corporate suretyship that has to do with the bonding of public contracts. Such contracts are almost always—the exceptions would constitute a permillage rather than a percentage of the whole—awarded to the *lowest bidder*. The adequacy of the contract price is, of course, a matter of the utmost importance to the surety; and yet at the very start the surety knows that it is bonding, not one of the high bidders, but the lowest bidder of all. In this respect at least the selection is obviously and emphatically against the surety company. The point is important, but it need not be labored, because it is easy to see that this inevitable feature of contract bonds handicaps the surety company in a way before the race is even begun. While it would be easy to cite somewhat comparable situations in certain types of insurance (plate glass, for example), the point is of outstanding importance in some branches of the bonding business.

24. Premiums Not the Sole Resource in Suretyship:

Having considered in the last eight sections numerous differences, all of rate-making interest, between bonds and insurance risks, we come now to a diametric difference that overshadows all the others in importance. In life, fire, casualty, and most other insurance lines the only source of revenue available for loss payments, or at least the chief source, is the premium fund. In suretyship, however, premiums constitute only one of four resources that bulwark the bonding companies against ultimate loss.

Two of those resources oftener than not are absent, but the other two are always present—the one considered in this section and the premium fund. In addition to that fund the surety company, as respects every bond issued, always has the automatic and assured indemnity of the principal on the bond.

Most people think of the bonding business as a form of insurance, and this indemnity feature of suretyship is so foreign to the average man's idea of insurance that he has some difficulty at first in grasping it. Not infrequently, indeed, principals on bonds protest when they are requested to execute agreements of indemnity, and ask in an aggrieved tone what they are paying the premium for anyway. The situation must be explained to them, patiently and clearly, and they must be shown that the obligation underlying the bond is primarily and absolutely *their* obligation, and remains theirs after the surety has signed the bond with them exactly as much as it was before.

The average man, moreover, is not alone in his failure to understand what indemnity is, and how important it is to surety companies. Not long ago, when a high officer of a fire company asked me to issue an appeal bond for one of his affiliates, and when I ventured to suggest that the indemnity of the parent company would be in order, he almost suffered a stroke of apoplexy over the preposterousness of the idea. While his remarks lacked coherence, it was evident that he deemed surety bonds and fire policies identical as to this point, and thought that the payment of the premium for the bond absolved his company from any further liability in connection with the matter.

While some classes of bonds are written "on an insurance basis," as the saying is—that is, without much reference to the indemnity of the bond principal, because that is known to be of little or no practical value (cf. section 30)—in plenty of cases the bond is deemed prudently issuable only because of the financial responsibility of the principal and of his obligation to stand between the surety company and loss; and a vast number of bonds are breached every year, with no loss whatever to the surety company, because a solvent principal either discharges the obligation of the bond before the surety is required to do that or subsequently reimburses the bonding company in accordance with the contract of suretyship.

25. The Indemnity of Outside Parties:

In addition to the premium fund and the automatic indemnity of the principal, surety companies frequently enjoy a third resource—the indemnity of relatives or friends or business associates of the immediate principal. Such indemnity is required by surety underwriters, as a condition precedent to providing the desired suretyship, under conditions that continually arise in practice. If a young man, for example, of slight financial responsibility should apply for a consignee's bond, he would be deemed by most underwriters ineligible for such suretyship on his own merits. If, however, his father were a reputable business man and fairly well-to-do, and if he would agree to indemnify the surety company for any loss that it might sustain in connection with the desired bond, some underwriters would deem the bond writable.

Indemnity agreements are continually executed by large and responsible corporations in connection with bonds needed by subsidiary or affiliated concerns that are deemed by underwriters not to qualify in a financial way for the given risk. A supply house that hopes to profit from the execution of a given contract will sometimes agree to indemnify a surety company if it will issue the bond that must be furnished by the contractor. Under numerous other circumstances third persons who may be advantaged in some way if a certain bond is issued will indemnify the surety.

When a person is quite unworthy, on his own merits, of suretyship, it is rarely prudent to bond him merely because outside indemnity, even of apparent good character, is offered. That is so because experience shows that in the event of trouble indemnitors will frequently seek to evade liability, and will often find means of doing so. When the indemnitor is a corporation extreme care must be exercised to make sure that the indemnity agreement executed by the corporation is legally valid. A resolution passed by the Board of Directors referring specifically to the given indemnity agreement may be necessary; and even then under some conditions the courts will deem the giving of indemnity *ultra vires* and thus not binding on the corporation.

While indemnity agreements, as indicated, sometimes prove to be of no value in the hour of need, they are continually taken nevertheless by the surety companies, for their moral effect if for no other reason, when the principal does not quite satisfy normal underwriting requirements. In practice, too, in many cases such agreements are found to constitute a real resource in the final liquidation of bond losses.

26. Collateral Security:

This is a fourth barrier against loss when surety bonds are breached. It has no counterpart in the insurance business, and is, indeed, inconsistent with the whole idea of insurance. What would be thought of a fire underwriter who, in giving a house owner a $10,000 policy on his house, should simultaneously demand from the insured $10,000 in cash or government bonds to secure the insurer in case the house should burn down? Yet that very thing is done blithely every hour in the day by shameless surety underwriters. Many millions of dollars are held by the surety companies all the time as security for outstanding bonds.

While surety men are grievously misunderstood in numerous respects, and are concededly a much abused segment of humanity, they are particularly disliked because they will issue certain types of bonds, generally speaking, only if first fully secured with collateral of acceptable character. The bonds referred to are commonly known as "financial guarantees"—bonds conditioned absolutely that the principal will pay a given amount of money on some stated date or on the happening of some described contingency. Applicants for such bonds, and many insurance agents representing them, are likely to take the position that the surety company, as a matter of course and as part of their general obligation to serve the public, should provide such suretyship without security, for principals of good moral character and of such financial responsibility as *in the judgment of the principals and the agents* will enable the principals to discharge the debt at maturity without loss to the bonding company.

In fact, of course, no surety company writes these bonds on any such basis, or could stay in business long if it did. Generally speaking, all companies issue appeal bonds, writ-of-attachment bonds, tax-abatement bonds, and similar instruments the execution of which by a surety company is substantially equivalent to an endorsement by the surety of the principal's note for the amount of the bond, only on the basis of full collateral security.

Why in the world should they be expected to do anything else when the premium received is trifling in comparison with the liability assumed, when it is always more than probable and sometimes fairly certain that the bond will be breached, and when, for underwriting purposes anyway, it is quite necessary to assume that the bond will be breached? The examples cited were all judicial bonds: frequently the financial guarantee given by the surety has to do with some routine detail of the principal's business (payment of the monthly rent, say); and when that is so, the surety is really going into partnership with the principal, in no very strained sense, except that the principal gets all the profit if the business is successful, while the surety holds the bag under reverse conditions.

Much of this comment may seem to the reader superfluous and unconnected with our general inquiry; but we shall see shortly that it all has a close and direct bearing on rates.

27. The Insurance Rate Theory and Depository Bonds:

We have cited a number of respects in which suretyship differs from insurance. More could be mentioned, but enough has been said perhaps at least to suggest that theories of rate-making applicable to insurance may not be appropriate to suretyship. That future underwriting results in a given line of surety risks may not always be accurately forecast from a study of the actual experience over a long term of years in such line is strikingly shown by the sad history of depository bonds. They began to be written soon after the turn of the century, and a considerable volume of business was in force in the fall of 1907, when the financial troubles of that year came to a head. For a few days surety executives were distracted with anxiety lest conditions get completely out of hand, and they suffer disastrous losses. In fact, the panic was arrested before very serious damage was done so far as depository bonds were concerned. For nearly twenty years thereafter the depository experience of all the companies was excellent —so good, indeed, that in the later years principals, obligees, and insurance officials were unanimously of the opinion that the rate should be reduced. For more than twenty years a rate of ½ of 1% per annum on the amount of the bond was maintained with no variation.

If the principles of rate-making used in most insurance lines had been applied to depository bonds in the early 1920's, say, a reduction from the rate stated would clearly have been in order, because experience tables over a long term of years would have shown loss ratios ranging from 5% or so to 20% or so, and an average, it is thought, of not more than 10%. In fact, the rate throughout those years was *too low,* on the assumption that the business was to be written on an insurance basis (that is, without security); and a rate very much higher would have been necessary if the companies were to accumulate a fund sufficient to care for the enormous losses yet to accrue.

Just as life actuaries base their rates in large part on tables of human mortality, so depository underwriters, if insurance theories of rate-making are to be controlling, should be governed by the ratio between bank suspensions in a given year and the number of banks operating in the year. In the first twenty years of the present century one-third bank in one hundred failed each year on the average (in only two of the years did more than one bank in two hundred fail). In the next thirteen years, 4.36 banks, on the average, out of every one hundred operating, closed their doors; in the three years 1931-33 more than ten banks out of every hundred operating went under each year on the average; and in the year 1933 more than twelve banks in every hundred that operated in that year became insolvent.

Is it not obvious that theories of rate-making based on the assumption that tables portraying past experience may safely be used in forecasting future experience have no applicability to surety bonds of the character just considered? What sort of rate would a life company make if, having seen from its mortality tables that at the end of a given twenty-year period, one out of three hundred of its risks had died each year on the average, it found, a few years later, that thirty-nine instead of one out of every three hundred were dying each year?

28. The Insurance Rate Theory and Mortgage-Guarantee Bonds:

The story here, in essential respects, duplicates that just told. For thirty years or so, prior to five years ago, the guaranteeing of the payment of principal and interest of real estate mortgage loans had been found to be not only safe, but extremely profitable. The cost of the guarantee was the same, as it happens, as that of guaranteeing the solvency of banks—½ of 1% per annum—and that rate, as stated, seemed on a statistical basis to be more than ample. The bonding companies (few in number) that slowly embarked in the business of guaranteeing such mortgages, after the title companies had monopolized the field for a quarter of a century, were surely justified in their course on the basis of the careful and fully recorded experience, even though considerations of a more fundamental character might well have given them pause. Everybody concerned with the business came to grief, in 1933, when the experience was utterly reversed, and when all the New York companies whose business was confined to guaranteeing mortgages were taken over by the Insurance Department for liquidation. Once again it had been demonstrated with deadly emphasis that surety rates, as respects certain types of bonds at least, could not safely be based on premium-and-loss statistics covering many years of experience. Incidentally it may be noted that surety companies operating in New York are now prohibited by law from providing mortgage guarantees.

29. Bonds Must Be Grouped for Rate-Making Purposes:

Two fundamental facts seem to stand out from the foregoing. In the first place, suretyship differs from insurance so markedly and in so many ways that, at least as respects certain important branches of suretyship, the simple method of testing rates applicable to insurance—by means of tables of premiums and losses recording the experience of prior years—will not work. Secondly, while some lines of suretyship have so many qualities in common that a single method of rate-making would be suitable for them, other lines vary so widely from the group possessing common qualities as to require separate rate treatment. In the case of certain classes of bonds few or no losses are expected, because of the nature of the risk assumed or of the underwriting rules followed; while in other cases it is known in advance that losses will be numerous and sometimes heavy. It seems clear that classes of bonds upon which few or no losses are likely should be rated in accordance with principles differing from those applied to bonds upon which a considerable loss ratio is expected. In practice bonds *are* grouped for rate-making purposes into a large number of classifications. To go into all the refinements of practical surety rate-making would take us far afield, and our immediate inquiry will be satisfied perhaps if we consider merely the general principles that appear to be fairly acceptable as rate foundation stones.

30. Bonds Written on a Quasi-Insurance Basis:

It must be admitted at the outset that certain classes of bonds are regarded, even by surety underwriters, as insurance for all practical purposes and especially for rate purposes. Although the risks in question are really bonds, and always have a principal who is primarily liable and to whom in theory the surety company can always look for indemnification in case of loss, in practice the bonds are written with little or no regard to the indemnity feature and as if the bond were really a policy of insurance.

While certain important species of license bonds do not in the least fit the foregoing description, the general class of license and permit bonds provides numerous examples of the risks referred to in the preceding paragraph. In such cases the bond amounts are small ($500 or $1,000, say), the loss ratio is low and fairly constant, and the principals could rarely qualify for suretyship of any character on the basis of financial responsibility. It is frankly taken for granted by underwriters, as respects this type of risk, that losses will be irrecoverable and must be absorbed by a premium fund, accumulated for that precise purpose as in the case of ordinary insurance.

Notary Public bonds afford another outstanding example of risks that are commonly written in the way described. While they are classified as public official bonds, and are conditioned for faithful performance of duty, they virtually run in favor of the general public, and their real purpose is to protect notary-public patrons who might otherwise suffer loss from fraudulent acknowledgments, satisfactions of mortgages, and similar instruments or from other wrongdoing on the part of the bonded official. Losses under these bonds occasionally occur, as might be expected, but they are few in comparison with the number of bonds issued; and it has been found quite practicable to write the business in reliance upon the premium fund and with little or no regard to the obligation of the notary to hold the surety harmless.

31. The "Service Charge" Rate Theory:

We come now to a principle of rate-making which is largely though not wholly foreign to insurance lines generally, but which is so dominant in the determination of rates for certain important classes of bonds as to render other considerations more or less negligible. From an underwriting point of view the bonds referred to are completely unlike those just considered; and they could not possibly be written on a quasi-insurance basis. They include financial guarantees and such bonds in general as are written almost if not altogether in reliance upon the financial responsibility of the principal or other indemnitors or upon collateral security—not in the least because of any expectation that the total premiums collected on the given line of bonds will be sufficient to care for losses. On the contrary, it is perfectly well known at the start that the premium fund will amount to only a small fraction of the losses that would fall upon surety companies because of breaches of the bonds, except for the indemnity or collateral referred to.

Appeal bonds afford an excellent example of the type of risk under consideration. They are given by litigants who have lost their cases in some inferior court, and who are privileged to try again in an appellate tribunal if they will give bond to the successful litigant conditioned for the payment of any judgment that may be handed down against them by such higher court. Seventy-five percent, it is said, of the primary judgments so appealed from are sustained by the superior courts. If, therefore, appeal bonds were to be written on a quasi-insurance basis, it is obvious that the rate for such bonds would have to be 75% of the penalty of the bond in the given case (assuming that such penalty equalled the amount of the judgment, plus interest and costs), in order to care for pure losses: if costs, expenses, taxes, and the like were taken into account, the rate would have to be well above 100%. Any such charge for appeal bonds would be out of the question, of course. In fact, the rate for bonds of the type under review (service-charge bonds) varies from ½ of 1% to 2% per annum, according to the circumstances of the given case.

Numerous examples could be cited of surety risks that belong in the same class with appeal bonds for rate-making purposes—many other kinds of judicial bonds, tax-abatement bonds, workmen's compensation bonds, insurance-company qualifying bonds, guarantees that lessees will perform lease contracts, etc. In all the cases referred to the rates are made with little or no regard to possible losses (which are assumed to be non-existent so far as rates are concerned), and almost wholly on the theory that the premium represents a *service charge.* Some debtor, actual or prospective, whose word or written promise will not be accepted by his creditor, needs a guarantor; and a surety company, if adequately indemnified or collateralized, will provide the required credit, lending to the debtor the responsibility of its seal and signature, in return for a microscopic (comparatively) service fee.

We saw in section 19 that insurance rate-making methods were quite impracticable in some cases of suretyship for the excellent and conclusive reason that no experience was available from which to estimate future losses. While such situations occasionally confront insurance underwriters, they frequently arise in the never-ending development of corporate suretyship; and when they do this service-charge principal of rate-making is likely to be available, appropriate, and fair to all concerned. About eight years ago, for example, Oklahoma City passed an ordinance requiring oil operators, in the case of every oil or gasoline well drilled within the city limits, to file a $200,000 bond conditioned for the payment of loss if the wells should get out of control or catch fire or otherwise cause damage. No suretyship of that nature had ever before been called for, and a rate for the new bonds, for which numerous and urgent applications were immediately received, had to be planned on some basis and promulgated promptly. This principle of a service charge was deemed controlling and proper in every way, and the situation was handled on that basis to the satisfaction of all concerned.

Many similar examples could be cited of rate problems, suddenly sprung upon underwriters, that have proved to be easily solvable by this same service-charge principle. It is particularly adaptable to suretyship because of an objective difference between insurance and suretyship which was not mentioned when we considered that point (cf. sections 14-23), but which is highly relevant to our immediate topic. We have in mind the fact that surety bonds have a positive intrinsic value to the people who buy them. Insurance policies are, of course, of value to insureds, but they are negatively advantageous, so to speak—they are a sort of necessary evil, something that one must have to guard against possible mischances. Surety bonds, on the other hand, in many cases have a positive value to the buyer that vastly exceeds their cost. The oil drillers would simply have had to go out of business, so far as Oklahoma City was concerned, except for the bond. The defeated litigant would have to pay the judgment and abandon all hope of final success, unless an appeal bond were available. Thousands of business concerns that questioned the constitutionality of certain processing taxes levied upon them by the Federal Agricultural Adjustment Administration Act were able by means of surety bonds to stay the collection of the proposed taxes, and ultimately (since the law was found to be unconstitutional) to escape payment of it altogether. A lost-instrument bond is obviously of great and intrinsic value to the principal thereon, who because of it is completely reinstated as a security-holder and enjoys for all time to come the benefit of such ownership. Not every insurance policy nor every surety bond exemplifies the point under discussion; but we have here undoubtedly an important general difference between suretyship and insurance.

32. Intermediary Rate Classifications:

A wide gulf exists, as respects our main question, between bonds written on a quasi-insurance basis and those classified for rate-making purposes as service-charge instruments. Between the two lie a multitude of risks assumed by surety underwriters that are not so easy to rate with confidence in one's guiding principles. What shall we say, for example, of fiduciary bonds? When we guarantee that a guardian or a testamentary trustee will faithfully perform his duties for the many years that the trust will continue, we surely do not underwrite the risks as if they were insurance policies. On the contrary, we investigate fully the applicant's eligibility for such suretyship; and not infrequently we either reject the bond out of hand, or agree to write it only if our principal will subject the trust estate to our joint control. The service-charge theory of rate-making, moreover, while applicable somewhat to fiduciary bonds, seems not quite to serve the purpose. Here, as in numerous other intermediary classifications, it seems necessary to adopt in part insurance methods of rate-making, and to be governed largely by tables of experience showing underwriting results, not for a few years only but as far back as possible. Those results, of course, in the case of individual companies, will be determined by the skill and judgment with which the business is underwritten; but rates are necessarily made on an assumption that risks will be underwritten, not with an absolute maximum of expertness but only with average ability—with such a degree of perfection as is attainable in the actual conduct of the business.

It is to be remembered, in connection with the whole question of rates and underwriting, that the bonding companies are not at liberty to reject any and all applications for suretyship that fail to fulfil every last condition of acceptability: they must sometimes issue bonds that they would really prefer not to write. Such situations result from agency pressure particularly, but also at times from the fundamental obligation of the bonding companies to satisfy the public demand for suretyship so far as that can possibly be done with reasonable regard for their own ultimate solvency and well-being.

These comments regarding fiduciary bonds apply as well to public official risks and to many miscellaneous surety lines; that is, rates are determined more by the experience in the given line than by any other single factor.

Three classes of suretyship produce so large a proportion of the total revenue derived from the bonding lines that it seems worth while to consider each of them separately with reference to rates. We do that now in the next three sections.

33. Fidelity Rates:

While bonds guaranteeing honesty on the part of their principals satisfy all the requirements of suretyship, this branch of the business is frequently referred to as fidelity *insurance*. The term is convenient, and it is surely the case that fidelity bonds have more characteristics in common with insurance than do most of the other types of suretyship. For rate-making purposes particularly may fidelity risks be deemed a good deal like insurance. In both cases losses are paid, generally speaking, out of a premium fund accumulated for that precise purpose: they are not paid, as in the case of many branches of suretyship, from collateral furnished by principals when the bonds are issued, or from cash procured upon the occurrence of loss from responsible principals or indemnitors. It is further true that fidelity rates are tested by, and largely determined by, tables showing premiums, losses, and other underwriting experience over a term of years.

In thus applying insurance actuarial methods, however, to fidelity experience it is necessary to give special consideration to three features of these risks that are included in the premium and loss statistics either not at all or only imperfectly, as follows:

a. While all insurance and surety underwriting involves, of course, certain costs incident to the preliminary examination of the risk or obligation to be assumed by the insurer or the surety, such costs, generally speaking, are inconsiderable in the case of most insurance lines, while they use up a large part of the premium in the case of many fidelity risks. In some of the fidelity rate classifications (department stores, for example), where a large proportion of the risks are bonded in small amounts and where the premium per person bonded may average only two or three dollars, it is clear that investigation expenses may use up about all the premium that is left after acquisition and other costs are cared for. Obviously the rate for fidelity lines of this type could not safely be computed on the usual insurance basis, with allowances for only losses and normal costs.

b. We have noted already (cf. section 22) the important fact that surety losses are slow in arriving. That is particularly true of fidelity bonds. Under the stress of competition, if for no other reason, surety companies quite commonly nowadays give the insured continuous protection as long as the bond remains in force; that is, losses are indemnifiable so long as the employee remains in the service and bonded, even though the loss may not be discovered for years after it occurs. Moreover, the cutoff period applicable to the entire bond is commonly, nowadays, from one to three years. If a bond remains in force twelve years, say, and if an employee in the service and bonded throughout that period caused the insured a fidelity loss, covered under the bond, at the beginning of the twelve-year term, the insured can collect the loss even if it is not discovered for fifteen years. This is not a mere theoretical danger. The discovery by insureds of fidelity losses years after they were really sustained is a common occurrence.

This condition of things is now recognized by Insurance Departments, which require bonding companies to maintain a substantial reserve for "incurred but not reported losses"—10% of the amount of fidelity premiums in force and 3½% of the amount of surety premiums in force (the New York requirement). This rule has not been in force long enough to show whether or not the foregoing percentages are adequate.

When, not long ago, a certain state protested that bank fidelity rates were too high, the defendant companies pointed out that in an adjoining state there had recently come to light a $250,000 bank defalcation extending over a period of ten years—a loss amounting to more than eighteen times the average annual premiums paid by all the banks of the kind insured in the rate-complaining state. In another similar bank case the loss was one of $3,000,000, not discovered until 1931, though the defaulter began his operations twenty-eight years earlier.

Obviously the factor of delayed discovery of losses must be taken into account by a fidelity rate-maker. The premium fund must cover, not only such losses as are reported within the active premium term, but as well those that are certain to arise after the end of such term.

c. In many, though not all, kinds of insurance a loss paid is total and final, and the matter ends there (except perhaps as respects the acceptance of future business from the insured). That is far from true of fidelity losses. In every such case there is always a principal who is primarily liable for the loss. Sometimes the principal himself makes good the loss to the bonding company, wholly or in part. Oftener perhaps indemnitors, or people otherwise interested, do that. This salvage feature of fidelity suretyship is highly important in practice; and frequently, in individual cases, the final figures are changed from red to black because of it. One important company, for example, showed, over a period of fifteen years, an average ratio of recoveries against losses paid of 23.6%, varying from a low of 17.2% in 1931 to a high of 37.5% in 1927. These figures had to do with surety bonds of all kinds, but salvage from fidelity losses presumably predominated. The cost of effecting this salvage was doubtless considerable.

34. Bankers' and Brokers' Blanket Bonds:

The number of hazards to which blanket-bond underwriters are exposed varies with the degree of refinement shown by the analyzer, but any enumeration would have to include these nine—dishonesty of employees, safe burglary, theft from insured premises by outsiders, messenger holdup, losses in transit other than holdup losses, destruction, misplacement, mysterious unexplainable disappearance, and outside forgeries. Some of these hazards are clearly far greater than others; the one first named, for example, accounting for 60% of all losses in the calendar year 1936, and the one last named for 16%. Every exposure mentioned, however, is a source of loss, and all must be considered in connection with these ten determinants of the final charge for bankers' and brokers' blanket bonds: the amount of the bond; the form of the bond (they vary markedly in loss content); the number of employees; the premises covered (whether or not there are branches); the class of insured (bank, stockbroker, title company, investment trust, etc.); the riders attached to the bond; the extent of the covered zone about insured premises; the general discount, if any, applicable to the given class of insured; the general surcharge, if any, applicable to the given class of insured; and underlying or concurrent insurance, if any.

These bonds, by the way, illustrate aptly the point considered in section 19—namely, that in some cases rate-making based on experience is out of the question in suretyship because there *is* no experience. When five audacious surety companies (quickly followed by five more), in the summer of 1915, ventured to write blanket bonds on the basis of equal participation in every risk misgivingly accepted, they had absolutely no experience data upon which to base their rates.

While the diversity of exposures and the numerous factors affecting the question somewhat complicate the determination of blanket-bond rates, the problem is not hard to solve now that years of experience and a large body of illuminating statistics are available. The risks invólved are largely insurance hazards; and our task is to assemble complete and dependable premium, loss, and expense statistics, covering a long experience, segregated as to types of risks, and to calculate therefrom a final net rate. Since the fidelity exposure, in the case of bankers' and brokers' blanket bonds, constitutes so large a proportion of the whole, the methods employed in rating fidelity bonds in general are largely applicable to blanket bonds as well.

These bonds were first written in this country about twenty-three years ago. The volume of business was small at first, but before long it increased with startling rapidity. While the whole venture was untried from the beginning, new types of exposure were continually added; some of them, like outside forgery, involving explorations into vast and hazardous insurance and surety areas theretofore completely unknown. Yet even under such extremely difficult conditions it was found practicable in most of the intervening years so to rate the business as to make it writable with substantial satisfaction to all concerned. At times some classes of blanket bonds have been found unprofitable and rates have been correspondingly increased. Oftener, however, they have been lowered, in line with shrinking loss ratios. The experience has been fairly good, and the rate situation, it is thought, has been acceptable, on the whole, to insureds.

The continued and extraordinary success of bankers' and brokers' blanket bonds must be attributed in great part to the skill and judgment of the Rating Bureau and its advisory underwriters.

35. Contract Bonds:

While the surety companies have usually gotten along fairly well with most of the people who buy their bonds, that has not always been true of contractors. The story is too long for telling here, and it suffices anyway for present purposes to say that dissatisfaction with rating methods has played a leading part in the trouble. It is not easy, in fact, to explain and justify, briefly and convincingly, some aspects of contract-bond rating. Generally speaking, the large, experienced, and responsible contractors, bidding on given jobs, will pay for the bond guaranteeing performance of the contract precisely the same premium that all the other bidders will pay, including those who may be in a different class as respects experience, equipment, and general resources. Obviously such a condition of things will stand a lot of explaining.

Contract bonds, of course, constitute perfect examples of suretyship pure and simple. The principal commonly signs the bond ahead of the surety; and whether he does that or not, he always understands that he is primarily liable, and must make good to the surety, to the last penny of his resources, any loss that the surety may sustain under the bond. The likelihood that the principal, as indicated by his character, experience, equipment, and financial statement, will in fact perform the bonded contract without loss to the surety is thus the pivotal point upon which all underwriting thought converges. Yet the rate, as stated, is not affected by the condition of things in this respect.

While numerous factors have weight with underwriters in considering given cases, the chief point, aside from the one of preponderant importance just mentioned, concerns the nature and the terms of the contract to be bonded. The rate *is* affected, and radically affected, by this point. Ordinary supply contracts, for example, take a rate of ¼ of 1% of the contract price. Contracts other than supply, of certain types, pay ¾ of 1% of the contract price; and of certain other types, 1½% of that price. On bonds conditioned for the performance of road-building contracts, the rate is 1%. Contracts that are very large, difficult of performance, and of long duration are always specially rated. While the rule is subject to numberless exceptions, it may be stated generally that the rate for contract bonds is 1½% of the contract price for any term up to twenty-four months, and ¾ of 1% thereafter on the amount of work unfinished at the premium-anniversary date.

The responsibility of the contractor and the nature of the contract are the main considerations of underwriting value. As we have seen, the rate for contract bonds varies with only the latter and less important of these two considerations. That is so because the nature of contracts, the hazard involved in performing them, is subject to little or no change, whereas the conditions affecting the other and dominant consideration always change more or less and sometimes change markedly with every bidder.

The fact, moreover, that the rate is not affected by the real or presumed responsibility of the principal is not so singular as might at first appear. The same thing is true, indeed, of surety rates in general. An impecunious principal on an appeal bond, for example, pays no more for the surety company's guarantee of his obligation than would a multimillionaire pay for the same service. In both cases the rate is based on an assumption that no part of the premium resulting from the rate will be needed for loss-paying purposes, and on the further assumption that underwriters will do whatever is necessary to make the given situation consistent with such a theory of rates. The surety executive, for example, referred to could get *his* bond only upon a prior deposit of full and prime security, while the multimillionaire, if the bond were not too large, would perhaps be cared for merely on the strength of his automatic indemnity.

All the foregoing applies equally to all classes of bonds, except those written on a quasi-insurance basis. In the case of contract bonds, for example, the rate takes into account, as stated, the character of the work to be bonded, increasing as the hazard increases; but the rate ignores differences of acceptability in principals among contractors, just as it views appeal bonds without regard to the financial standing of individual applicants. In other words the Rating Bureau assumes a condition of things that every contract underwriter would emphatically declare to exist—namely, that no company will issue a contract bond unless it has confidence in the ability of its principal to perform the given contract.

There is the further assumption as before, on the part of the Bureau, that the underwriter will take whatever measures may be necessary to ensure the absence of loss. Such measures include, though not often, the deposit of collateral security; frequently the furnishing of good indemnity; sometimes, when practicable, the assignment of estimates (payment for work accepted); and other similar safeguards.

While it is hoped that none of the foregoing statements are either misleading or inaccurate, it is known, of course, by both the Rating Bureau and underwriters that contractors, for a multitude of causes that are always unforeseen and are sometimes unforeseeable, do in practice, not infrequently, fail to carry out the bonded undertaking; and it is known additionally that in many such cases the principal's indemnity proves to be without value, and that the surety company is found either not to have taken the loss-preventive measures referred to above or to have found them insufficient.

Knowing all this full well, the Bureau supplements other means of determining proper contract rates with comprehensive and minutely classified tables of experience. Weak spots in the rate structure, not otherwise discoverable, are sometimes thus revealed.

36. Merit Rating:

Because, as stated, under the present and all past methods of rating contract bonds no consideration is or has been given to the financial responsibility and other qualifications of the given applicant for contract suretyship, it has sometimes been suggested that a differential system of rating these bonds be adopted, and that contractors be individually debited or credited, as the case might be, with percentages of some rate, deemed fair to the average contractor and thus normal, in accordance with the given principal's character, experience, equipment, financial resources, and eligibility in general for suretyship of this type. No fully developed, detailed plan of experience rating for contract bonds has ever been devised and published, so far as the writer is aware, but some such system as that roughly outlined above is thought to underlie the proposal.

Thoroughly and satisfactorily to formulate and expound a plan of experience rating would require far more space than is available here—even if the rash assumption were made that the present writer would be equal to such a task. The suggestion has been considered on many occasions by rate experts and by underwriters, but they have never been able to convince themselves that it was wisely adoptable. These are some of the reasons for that conclusion:

a. One of the first conditions laid down by all awarders of contracts is that bidders shall compete on an equal basis. No such equality will exist if one bidder gets his bond for ½ of 1% of the contract price, say, while another or others must pay two or three times as much. The cost of the bond is taken into account, of course, by the bidder in his estimate of the cost of performing the given contract, and is included in his bid for the work. It happens all the time, in highway lettings and in many other kinds of public construction, that the bids are exceedingly close; and under such conditions even a small difference in the cost of the bond might determine the successful bidder.

b. In compensation and other casualty lines, where experience rating has long been practiced (not with conspicuous success in the opinion of some underwriters), the conditions appear to be essentially different from those confronting contract-bond rate-makers. A principal either performs his contract, without loss to his surety, or he defaults, with resultant loss and trouble to his surety. As long as he continues to perform every bonded contract, he has a 100% experience record. If, however, he involves his surety company in loss *even once*, he is pretty well out of it, generally speaking, so far as future suretyship is concerned. Compensation insureds, on the other hand, may have a high accident frequency, and may still be deemed insurable, and the experience will be an important factor in the fixing of the compensation rate. An important difference in this respect, however, may be noted between compensation insurance and contract bonds. In the former maladjustments of rates, demonstrated by the experience, are remediable with comparative ease and may be made promptly effective. A contract-bond rate, on the other hand, is determined when the contract is awarded, and necessarily remains in force until the contract is completed, long after and perhaps years after the rate is fixed. So far, therefore, as past performances might be deemed to justify departures from normal charges, the plan of experience rating would seem to be of limited applicability to any theory of contract-bond rating.

c. So far as merit rating, in the contract-bond field, might depend, not on the past performances just considered, but on financial resources, equipment, and similar claims to suretyship, it is obvious that the assignment of just ratings to the thousands and thousands of contractors continually buying bonds would be a task so vast and baffling as in all likelihood to defy successful completion. Moreover, even if it were assumed that such an encyclopedic catalogue of contractors could be once compiled with substantial accuracy and fairness, is it not clear that the rates would be subject to continual change, and would quickly become misleading and undependable unless far-reaching and expensive means were adopted to keep them up to date? Every time a contractor completes a job his financial condition is either better or worse than it was when the contract was undertaken, and his experience rating should be correspondingly changed. In practice, of course, it would not be—unless an army of statisticians and accountants were constantly employed in such work. The business death-rate of contractors is and always has been extremely high. Not infrequently big names in the construction industry ultimately become only distant memories. It is thought, indeed, by some experienced contract underwriters that *all* contractors, generally speaking, sooner or later come to grief. The claim records of all the bonding companies show with sad emphasis how little it takes, in the way of mischance or poor judgment, to "break" the average contractor. How easy it is for an underwriter to be entrapped by an old and honored name is shown by a Cramp Shipyard loss. The Cramp concern had been building ships for nearly a century, and its contract bonds were eagerly sought. Yet it finally defaulted upon a contract to build two cruisers for the United States Government. Although the loss to the surety companies interested was ultimately very much less, at one time they were involved to the extent of one million dollars.

d. If experience rating were practicable and advisable in the case of contract bonds, why would it not be in other lines of suretyship? Indeed, something of the sort has been proposed at times, especially by banks which have gone along year after year without loss, and which for that reason have felt entitled to special rate consideration. A very large Chicago bank, for example, complained bitterly to the Rating Bureau and to insurance officials because American bonding companies insisted on charging the regular rate for the big blanket bond that the bank carried for many years, without making even one demand upon the surety companies under the bond in all that time. Finally the bank dropped its unreasonable American insurers in favor of more considerate gentlemen doing business at London Lloyds. Only a short time thereafter a fidelity loss of $4,000,000 came to light. Every year for many years before the discovery of the defalcation the bank had been losing $100,000 or so. Yet it would have been entitled throughout much of the period to a high credit under any system of experience rating.

e. In the absence of a detailed, well defined plan comment is bound to be more or less futile, but perhaps it may be assumed that the advocates of experience rating for contractors have two aims in view—to benefit the large and responsible contractors, thought to suffer unjust discrimination under the existing system, and to improve underwriting results by increasing the premium fund procured from the class of contractors presumed to cause most of the losses. It is not clear to this writer that the first aim is necessary or that the second would effect the end desired.

From the nature of the case large contractors have manifest advantages over smaller ones under the present system in that they procure bonds readily, as a rule, and without being subjected to inconvenient or perhaps impossible underwriting requirements. All the time it happens, on the other hand, that relatively weak contractors, minded to compete with bigger men on undertakings thought to be too large or difficult for their existing resources, are forced by the surety companies, as a condition precedent to the issuance of the given bond, to modernize their equipment or increase their capital or furnish dependable indemnity or otherwise to qualify for the suretyship needed.

With regard to the second point, it is suspected that the adoption of an experience rating plan would in practice diminish substantially the revenue derived from large contractors without increasing much that procured from the remaining principals, and that the net result would be a greatly diminished contract-bond premium fund and a correspondingly increased loss ratio.

Even if it were conceded that an experience rating plan would confer upon the construction industry and the surety companies the benefits referred to, and perhaps others unknown to this commentator, it would still be the opinion of most contract-bond underwriters, it is thought, that the other and necessary consequences of the plan would vastly outweigh any merit that it might have—the confusion, uncertainty, inevitable unfairness and something not far from general chaos that would eclipse and nullify such merit.

37. How Competition Affects Rate-Making:

Throughout this discussion we have written about rates as if the Bureau were free to recommend to its subscribers any rates that might seem to it fair and advisable after a study of all relevant statistics, consultations with expert advisers, and due deliberation. In fact, of course, surety rate-making is not as simple and easy as that. Sometimes, when a certain rate, after profound thought perhaps and prolonged research, has been definitely fixed as fair to all concerned and otherwise appropriate, it is found impracticable to use it. All the processes of rate-making considered thus far, and of rates resulting therefrom, are in numerous instances modifiable if not nullifiable by reason of three disturbing influences, almost entirely beyond control of the Rating Bureau, as follows:

a. While most companies doing a surety business in the United States are subscribers to the Towner Rating Bureau, and consistently quote the rates recommended by it, certain companies operate outside the Bureau and make their own rates. To a large extent, indeed, such companies deem it to their advantage to use Towner rates, even though they are under no obligation to do so. None of them, however, invariably follow the Towner Manual; and some of them are notorious rate-cutters, particularly in certain lines. This condition of things is, of course, perfectly well known to the Bureau, and it doubtless to some extent influences its action.

As a matter of historical interest, if for no other reason, it may be worth while to record the fact that in 1937 92½% of all the fidelity and surety business done in the United States was written by conference companies (Towner subscribers). Since non-subscribing competitors, as indicated, write a good deal of their business at Towner rates, it is perhaps fair to assume that 95% or so of all the surety business written in the United States carries Towner rates.

b. For many years corporate suretyship in this country has been subject, in a few important lines, to persistent and aggressive competition on the part of Lloyd's underwriters in London. That has been particularly true in the very important field of bankers' and brokers' blanket bonds; and at one time many of our big metropolitan banks, as well as numerous smaller institutions, were blanketbonded in London. In recent years, it is true, this blanket-bond competition has been materially tempered by reason of arrangements that may or may not prove to be permanent. On the other hand, our British cousins have become increasingly troublesome in recent years in the domain of general fidelity insurance. Numerous important risks of this character, enjoyed for years by American companies, have been transferred to London.

This situation, too, must be constantly in the minds of Bureau managers, and must affect their decision in close cases.

c. Public officials charged with the duty of approving bonds of various kinds that must be filed with them always prefer corporate to private suretyship. That would be expected on general principles; and in some cases the laws that require the bonds also provide that only corporate bonds shall be accepted. In plenty of instances, however—rather commonly in the case of public official and fiduciary bonds—personal suretyship is not only permitted, but is in practice, particularly in certain parts of the country, pretty prevalent. An actual count, for example, recently made in a county courthouse in Pennsylvania, disclosed the fact that out of 149 bonds covering administrators filed within a recent period, 137 had been executed by personal sureties.

It is clear that the foregoing condition of things operates as a sort of automatic safeguard against excessive rates in the lines affected. Few of the people who are asked to become surety for fiduciaries or public officials do so cheerfully; if they are well informed and wise, they will deem it a good investment to buy a corporate bond instead of exposing their personal assets to the perils of private suretyship. The Rating Bureau, of course, knows all about this potential competition, ever present in certain lines; and such knowledge, it may safely be assumed, has a restraining influence to some extent upon the Bureau.

38. Rates Are Sometimes Determined or Limited by Law:

Not only are rates affected by competition, as just described, but in many cases the Rating Bureau and the surety companies are absolutely barred by law from charging more than a stated maximum. That is true, for example, in the case of a large number of bonds required by the Federal Government. That particular law, as it happens, works no great hardship on the surety companies, because the rates now in force are in most cases lower than those required by the rule. The statutes of a number of states provide maximum premiums chargeable on bonds given by public officials and fiduciaries. Generally such statutes fix a maximum rate of 1%. It does not follow that the rate named by the Bureau is the maximum permitted by statute: in numerous instances the Bureau deems the business prudently writable at a rate lower than the maximum prescribed in the given law.

39. Acquisition and Other Incidental Costs:

The average man's method of determining an insurer's profit is to deduct losses from premium income and regard the remainder as the answer. That is absurd, of course, as respects all insurance, but in the case of suretyship particularly, important deductions must be made from the premium dollar before losses, not to speak of profits, come into the picture. The combined, country-wide experience of the sixty-four stock companies entered in the state of New York in 1937 shows that the total expenditures made by those companies in that year, outside of losses paid, aggregated, as respects the fidelity business done then, 55.8% of the net premiums written; and as respects surety business, 62.4%. The fidelity figure is somewhat higher than the average, for the seven-year period 1931-37 (51.4%); while the surety 1937 average is slightly lower than the seven-year average of 63.4%.

Although this point is not immediately concerned with our inquiry, it seemed worth while to include it, because it is obvious that in suretyship the premium dollar is not even a fifty-cent dollar for loss-paying purposes.

40. The Essence of It All:

Our long discussion may be skeletonized, and the conclusions implicit in it or fairly inferable from it may be stated, as follows:

a. Suretyship is not insurance, and should not be treated for rate-making purposes as if it were. This general statement, however, is subject to the broad qualifications outlined below.

b. In many types of bonds the chief determinant of the rate is the *value of the service* rendered by the bonding company in furnishing the suretyship. Breaches of the bond referred to are not expected, and no attempt is made in rating them to accumulate a premium fund for loss-payment purposes. Some kinds of license bonds, most kinds of custom-house bonds, grain warehouse bonds furnished by very large concerns to rigidly supervised boards of trade, and lost-instrument bonds may be cited as falling within this classification.

c. *In many types of bonds the chief determinant of the rate is,* again, the value of the service rendered by the surety company. In these cases breaches of the bond *are* expected—are virtually assumed, indeed, for underwriting purposes; but the certainty of numerous bond breaches is ignored by the rate-maker, and the premium prescribed makes no provision for loss absorption. It is assumed by the Bureau that underwriters will care for loss contingencies otherwise than through premium revenue. Appeal and similar judicial bonds are cases in point.

d. While the service-charge theory of rate-making is controlling in the two classes of bonds just referred to, other considerations affect the rate to some extent—acquisition costs; taxes; expense incurred in supervising risks, procuring termination evidence, adjusting claims, etc.; a modicum of profit.

e. In many types of bonds the chief determinant of the rate is the experience of the surety companies in the given case—actual underwriting results over a term of years. Only one of the four possible barriers against loss that safeguard surety companies (cf. sections 24-26) is available here—the premium fund; and such a rate is prescribed as will not only cover the items referred to in the preceding paragraph, but will also provide for the inevitable and foreseen losses. In other words the bonds in question are written on a quasi-insurance basis (cf. section 30), and are rated very much as if they were ordinary insurance policies. Numerous examples of bonds falling within this classification may be found in the "License and Permit" branch of the business. The minimum annual premiums and minimum earned premiums prescribed for license and permit bonds control the rates in a multitude of cases, and leave little room for speculation about rate theories. Bankers' and Brokers' Blanket Bonds, since they embody so many risks of pure-insurance character, rather less aptly but still fairly well, exemplify the method of rate-making referred to in this paragraph.

f. Most types of fidelity bonds are rated in accordance with the preceding paragraph, except that one important element of cost in the handling of such business, investigation expense, largely absent when bonds are written purely on a quasi-insurance basis, must be considered and cared for in determining rates.

g. Between the types of bonds whose rates are fixed or tested primarily by insurance methods (experience statistics) and the types whose rates are based on the service-charge theory lie numerous intermediate kinds of risks. They do not fall squarely within either of the classifications mentioned; and rates for them are determined, in varying degrees, by a combination of the two factors referred to, one of them sometimes predominating and at times the other. While no loss is expected in the instant case, when individual risks are accepted, it is known nevertheless that losses are bound to occur; and such a rate is named as will not only compensate the surety for services rendered and for incidental charges, but also will provide a fund for the payment of losses. Bonds issued in behalf of executors, guardians, testamentary trustees, and the like are rated in this way.

h. The following two fundamental considerations affect all surety rates, and require them to be somewhat higher than those apparently adequate if only short-term statistics are weighed, and if anything less than a very broad view is taken of the entire rate situation:

(1) The undoubted fact that industry and finance are subject to long-trend cycles of alternate activity and stagnation, certain to affect profoundly the results of normal surety underwriting;

(2) The further undoubted fact that the insolvency of an important surety company, with consequent inability to fulfil its contracts, affects disastrously and in great part irremediably thousands and thousands of innocent bond obligees, including many political bodies. It were far better that rates should be somewhat too high than distinctly too low; and they are too low if they do no more than permit the surety companies, with prudent management and reasonably good underwriting, merely to cover current costs and current losses and a little profit, but do not permit in addition the accumulation of a surplus against contingencies unforeseen but certain in the course of time to arise.

41. The Towner Rating Bureau, Inc.:

Some such plan of surety rate-making as that roughly and incompletely outlined in the preceding section is thought to be followed by the Towner Rating Bureau. The plan is regarded by the Bureau and by surety executives generally, it is believed, as conveniently workable, consistent with approved underwriting practices, and likely to produce rates involving no injustice to either the bond-buying public or the surety companies.

How extremely important the Rating Bureau is to the surety companies, and how essential it is to the welfare of corporate suretyship that Bureau operations be conducted with eminent skill and fairness, was indicated by the promulgation only the other day (September 12, 1938), in a single mail, of a typical collection of Towner bulletins. They were eight in number and almost all of far-reaching importance, alike to underwriters, principals, and obligees. One of them had to do with a new variety of warehouse bond that seems likely to involve suretyship of forty million dollars and to produce a premium fund of $400,000. Another of the bulletins referred to, similarly necessitated by a Federal department ruling, rated bonds never exactly duplicated in the past, but needed at once and probably in penalties aggregating millions of dollars. Hardly a week passes when the Bureau is not confronted with a variety of problems of the character indicated that must be solved quickly and correctly.

"Everything can be improved" is a sound and useful maxim, and it applies, no doubt, to the existing system of rate-making and to the Towner Rating Bureau. Yet so far as this writer sees the methods followed by the Bureau, refined and perfected in the light of nearly thirty years' experience, are admirably suited to the end in view, and could not be greatly changed without serious damage to the best ultimate interests of all concerned. While its aim may not be attained completely, the Bureau, it is clear, strives to exemplify Matthew Arnold's definition of culture, "A disinterested endeavor after perfection."

42. Interpretative Analyses of Loss Statistics:

It is of interest to note in connection with our main inquiry that little information is available, except perhaps in the files of the older and larger surety companies, regarding the specific causes of loss under given classes of risks. Principals on fiduciary bonds, for example (executors, guardians, trustees, and the like), may breach their bonds in any one of numerous ways—by continuing without authority a profitless business conducted by the decedent; by failing to convert promptly into safe securities investments of illegal character forming part of the original estate; by purchasing speculative stocks or bonds with the trust funds; by mishandling otherwise (however innocently) the property to be conserved and distributed; and of course and particularly by downright stealing of the assets of the estate. Would it not be both interesting and highly useful to underwriters if it were known that out of every hundred thousand dollars lost by the surety companies on fiduciary bonds, a certain percentage was due to dishonesty on the part of the principals involved, a certain other percentage to unwise investments made by them, and a third part to general incompetence, and so on?

Similarly in the case of contract bonds it would surely be of decided value to underwriters to know, in connection with a given large volume of losses, what proportions were due respectively to the moral risk, to inadequate equipment, to inexperience in the particular line of work, to washouts or similar disturbances of nature, to labor troubles, to rising prices, and other mischances.

In the important division of fidelity risks a most illuminating and valuable analysis of losses could be made. It would show what percentage of the whole was due to addiction to drink, for example; how much to horse-racing and other types of gambling; to what extent night-life and general dissipation contributed to the grand total; what part the stock market played in the sad exhibit; and so on.

While analyses of losses of the kind suggested have probably been made by some surety companies as respects their own operations, no comprehensive and dependable digest of the experience of all the companies has ever been compiled so far as this writer is aware. It seems singular that an aid to underwriting so obvious, simple, and elementary should never have been made available generally.

43. Apologia Pro Libello Suo:

"Gratiano speaks an infinite deal of nothing, more than any man in all Venice. His reasons are as two grains of wheat hid in two bushels of chaff: you shall seek all day ere you find them, and when you find them, they are not worth the search." Many a wearied reader perhaps will liken the author to Gratiano, now that we have come so far and achieved so little. No attempt has been made, in fact, to show how surety rates are determined in actual practice—still less, to fashion formulas and lay down rules in accordance with which rates should be made. It may be doubted, indeed, that the Bureau is governed in its fixing of rates by the rigid methods followed in some branches of insurance (in arriving at compensation rates, for example)—by theories and formulas based on mathematical concepts. Perhaps it is more a matter of general judgment, grounded in long experience, guided and controlled by certain broad principles, tested by actual underwriting results.

However that may be, a discussion of the methods that should be used in the determination of surety rates must be reserved for another occasion, or, much better, for other and more competent hands. All that was attempted here was to point out and discuss some of the numerous and striking ways, affecting rates, in which corporate suretyship differs from insurance; some of the difficulties of ascertaining just and adequate rates for surety bonds; some of the principles that may well underlie and control the processes of surety rate-making. Possibly some such preliminary study as this will be of use in connection with the larger and more important task of determining what precise methods may best be followed in fixing surety rates.

AVIATION INSURANCE

BY

BARBARA H. WOODWARD

According to the United States Bureau of Air Commerce figures there were only 9,152 licensed aircraft in the United States as of January 1, 1938 and of this number the scheduled airlines operated 386. The values of these planes range from less than one thousand dollars up to three-quarters of a million dollars, while the uses to which the aircraft are put are numerous and varied. Furthermore, conditions in airplane design and operation are changing so rapidly that it is impossible to keep up with developments. For these reasons it can be seen that the time for placing aircraft insurance on an actuarial basis has not yet arrived. Therefore this paper will not be concerned with possible rate-making formulae but will confine itself to a brief review of the aviation rate-making picture as it exists today with particular emphasis on the main casualty coverages.

Aviation Insurance Carriers

Aviation insurance in the United States is written by three underwriting groups of companies; the Aero Insurance Underwriters, the Associated Aviation Underwriters and the United States Aviation Underwriters. These three groups are members of the Board of Aviation Underwriters, the rate-making organization for aviation insurance, which at the present time only operates in New York State.

Classifications

Aviation risks have been classified into five main classes according to the use of the aircraft. These classes are:

1. *Private Pleasure*

All planes used for private pleasure and personal business purposes exclusively.

2. *Industrial Aid*

Planes used for transportation of executives and employees and for sales promotion purposes and owned by a business organization not otherwise connected with the aviation business.

3. *Commercial—Flying Services*

Planes operated for hire in connection with passenger and cargo carrying, charter flights, photography, sales demonstration, either including or excluding student instruction.

4. *Aircraft and/or Aircraft Engine Manufacturing*

5. *Scheduled Air Lines*

Planes carrying passengers, mail and cargo on a regular schedule.

Hull Insurance Coverage

Hull Insurance covers against loss or damage to the aircraft specifically described in the policy due to the following perils:

Fire A—fire on the ground only, excluding the running of engines.

Fire B—fire on the ground only, including the running of engines.

Fire C—fire on the ground and in the air, excluding fire following crash.

Fire D—fire under all circumstances.

Perils of the Air or Crash—Damage to the aircraft during flight due to collision with the ground, water or other object, including damage by fire or explosion caused by such collision and including damage due to stranding or sinking or water damage arising from flight. An aircraft unreported for sixty days after take-off is deemed to have been lost by reason of one of the above flying perils.

Windstorm—Damage to the aircraft by Tornado, Cyclone or Windstorm except while the aircraft is in flight or taxiing subsequent thereto.

Land Damage—Damage to the aircraft while on land, but not in flight or taxiing, caused by hail or by being struck by or colliding with another aircraft, vehicle or object (excluding any aircraft, vehicle or object owned or operated by the Assured or his employees).

Mooring—Damage to water-alighting aircraft, while not in flight or taxiing, caused by windstorm, hail, stranding or sinking or being struck by or colliding with another aircraft, vehicle or object (excluding any aircraft vehicle or object owned or operated by the Assured or his employees).

Theft, Robbery and Pilferage—Theft, robbery and pilferage, except by any person in Assured's household or employe.

Casualty Insurance Coverage

Casualty Insurance is the usual third party liability coverage comparable to bodily injury and property damage on automobiles except that bodily injury coverage on aircraft is subdivided into public liability and passenger liability which are separately insured and rated. A few years ago the aircraft liability policy contained no omnibus clause but merely covered the named assured for damage due to the specific aircraft while being flown by a named pilot. At the present time the insurance attaches to the specifically described aircraft while being flown by a specifically approved pilot and if such conditions exist then the insurance covers not only the named assured but also any person while riding in, any approved pilot while operating or any person legally responsible for the operation of the aircraft provided the operation is with the permission of the named assured. It will be noted that the pilot still has to be approved, which is not the case in automobile insurance.

Hull and Casualty Rates

Each aviation risk is still rated on its own merits based on information received by the underwriters in the application for insurance. Advisory rates have been set up for the average risk falling within the classifications of private pleasure, industrial aid or commercial. A majority of the aviation risks fall within these classes and the average advisory rate is quoted unless unusual circumstances are present. The New York Insurance Department has permitted the Board of Aviation Underwriters to file a rate range for each classification within which the advisory rates fall and within which each quotation falls. This filing will be continued until sufficient experience has been developed to permit the establishment of standard average rates.

As aircraft are not confined to any particular territory, there are no territorial differentials in rate with the exception of windstorm insurance in Florida where the rates are loaded for coverage during the hurricane season.

For the coverages which depend on the flying hazard, that is, passenger liability, public liability, property damage and crash, there is a differential in rate depending on the experience of the pilot approved by the underwriters to fly the plane. The fact that the experience of the pilot directly affects the flying hazard is amply confirmed by the latest Bureau of Air Commerce figures for the period July to December 1937 which show that out of 1,075 accidents in all flying operations excluding scheduled airlines, 55.3% of the accidents were due to pilot errors.

It is interesting to observe that in scheduled air line operations where all the pilots are experienced the figures for calendar year 1937 show that out of 50 accidents only 18.2% were caused by pilot errors, the greatest percentage of accidents (25.4%) being caused by the weather.

Average advisory hull insurance rates are given in the following table:

RATES

Coverages	Private Pleasure	Industrial Aid	Commercial	
			Excluding Instruction	Including Instruction
Fire A....................	2½%	2½%	2½%	2½%
Fire B....................	2¾	2¾	3¼	3¼
Fire C....................	3	3	3½	3½
Fire D....................	4	4¼	4½	5
Crash (10% Ded.)*........	12 or 12½	12½ or 13¼	14 or 15	18
Windstorm (5% Ded.).....	½	½	¾	¾
Land Damage (2½% Ded.)	½	½	½ or ¾	½ or ¾
Mooring (5% Ded.).......	1½	2	2 or 2½	2 or 2½
Theft ($25 Ded.)..........	¼	¼	¼	¼

* Crash rates quoted contemplate a pilot with over 500 hours' flying experience.

The above rates are subject to 100% co-insurance and are applicable only to a new plane insured for the full retail list price. Where a new or used aircraft is insured for less than the retail price the basic rates are loaded in order to pay partial losses in full. The formula used is as follows:

$$\text{Loaded Premium} = [X \times r] + [(Y - X) \times l]$$

$$\begin{aligned} \text{Where } X &= \text{Amount of insurance} \\ Y &= \text{retail list price} \\ r &= \text{basic rate} \\ l &= \text{loading rate} \end{aligned}$$

The loading rate is a percentage of the basic rate, viz.:

Coverage	Loading Rate
Fire	15% of Basic Rate
Crash	25 " " "
Windstorm	40 " " "
Land Damage	40 " " "
Theft	60 " " "
Mooring	40 " " "

The percentage loadings for fire and crash are comparatively low on the supposition that the majority of losses under these covers will be total.

The Board has ruled that the retail sales price minus the amount of insurance shall not exceed the amount of insurance, or $(Y—X)$ shall not exceed X. The operation of this ruling in practice is that when the value of a plane has depreciated to ½ the retail sales price, the full loaded rate is applied and this loaded rate is a maximum.

There is no specific rate differential based on the type of construction of the aircraft but this factor is considered by the Underwriters when making quotations.

Average advisory casualty insurance rates, where the pilot has over 250 hours' flying experience, are given in the following table:

RATES

Coverages	Private Pleasure	Industrial Aid	Commercial	
			Excluding Instruction	Including Instruction
Public Liability	$50	$60	$ 75	$ 80 or $85
Property Damage	50	60	70	75 or 80
Passenger Liability	30	55	75	75
Minimum per plane	50	75	100	100

For private pleasure risks where the pilot has less than 250 hours' flying experience the rates are:

Experience of Pilot	Passenger Liability	Public Liab.	Prop. Dam.
100 to 250 Hours...	$50 per Seat (Min. $65)......	$65	$60
Less than 100 Hours	60 per Seat (Min. 75)......	70	65
Amateur License...	Passenger carrying prohibited	80	75
Student License....	Passenger carrying prohibited	85	80

The above rates are for $5,000/$10,000 limits for Public Liability, $5,000 per passenger seat for Passenger Liability and $1,000 for Property Damage. Increased limits tables are used to obtain premiums for higher limits. The upper limit for passenger liability is the limit per passenger seat times the number of seats insured.

Rating of Scheduled Airlines

At the present time only two of the Underwriting Groups write insurance on scheduled airlines. The other group has withdrawn from this field for the time being. The Board of Aviation Underwriters has no jurisdiction over these rates as there are no scheduled airlines operating out of New York State. Consequently the rates for each risk are made by the carrying group.

A fundamental proposition for arriving at a proper rate is, however, followed by both groups in making rate quotations; namely, that the hazard in connection with any aviation risk is directly related to the amount of flying which is done. In the case of scheduled airlines, reports of aeroplane miles flown, passenger miles flown and number of hours flown are more readily available than is the case for individual miscellaneous risks. Therefore, rates for public liability and property damage are quoted on a "per aeroplane mile" basis while rates for passenger liability are quoted on a "per passenger mile" basis. A passenger mile is one passenger flown one mile.

For the Casualty covers the advisory rates used as a guide in rating minor scheduled airlines are:

Public Liability........	5/10 Limits	.001 per aeroplane mile
Property Damage.......	1000 Limit	.00075 per aeroplane mile
Passenger Liability.....	5000 Limit	.00225 per passenger mile

The casualty rates for the major airlines are lower than the rates given above and are not uniform.

A minimum annual deposit premium is charged and the earned premium adjusted on audit.

Rates for all hull coverages except crash offer no particular difficulty and are approximately the same as the advisory hull rates for the commercial classification. Rates for Crash are on a flat or flying hour basis with various deductible plans.

Admitted Passenger Liability

In connection with passenger liability insurance for other than scheduled airline risks, the underwriters offer a coverage known as "Admitted Passenger Liability" or "Guest Voluntary Settlement." This coverage is only available where the insured carries a passenger liability policy covering his legal liability with limits at least twice the limits of the admitted liability.

The company agrees with the insured to offer settlement of the principal sum regardless of legal liability, to any guest of the insured in regard to bodily injuries suffered by the guest while in, entering or leaving the insured aircraft provided such injuries result in loss of life or dismemberment. It is a condition of the payment of benefits that the guest execute a full legal release of all claims against the insured and anyone else covered by the policy. If the guest refuses to give the release then the assured is covered under the passenger liability insurance as fully and completely as if there had been no admitted liability.

The rate for admitted liability is $15 per thousand. Credit for this premium is given under the passenger liability premium in the following manner:

Assume a four passenger plane used for industrial aid and insured for 20/80 passenger liability of which 10/40 is admitted; in this case the rate for $5,000 per seat is $55.

The increased limits factor for $20,000 is	1.66
The increased limits factor for 10,000 is	1.36
Difference is	.30
Passenger liability premium equals 30% of $55 or	$ 16.50
$10,000 per seat Admitted Liability at $15 per M	150.00
Total premium per seat................	$166.50
Policy premium $166.50 × 4 equals.....	$666.00

If only the passenger liability for 20/80 limits were carried the premium would be

$55 × 1.66 equals $ 91.30 per seat
× 4
$365.20 total premium

In noting that where there is Admitted Liability the premium is in, entering or leaving the insured aircraft provided such injuries considerably higher than for passenger liability alone two factors may be mentioned. One is that where loss of life or dismemberment occurs, the passenger or his representative may receive the principal sum without resort to the good graces of a jury and the second is that there would be no necessity of proving negligence.

That it is necessary to prove negligence in regard to airline accidents was brought out in the case of Cohn *vs.* United Air Lines (U. S. Dist. Court of the Dist. of Wyoming, February 8, 1937), which was discussed in the 1937 Aeronautical Law Review as follows:

> "Plaintiff filed a suit in which the bare allegation was made that the defendant was negligent and that his negligence caused the death of Cohn.—The Defendant filed a Motion to dismiss.
>
> "The Court sustained the motion to dismiss the petition, holding that 'res ipsa loquitur' did not apply; that it was common knowledge that many plane accidents occurred which were unexplainable; that it was common knowledge that they could occur without negligence; and that until there was a further development of the art of flying and until flying reached a point of such mathematical certainty that an accident could only occur because of negligence, the doctrine would not apply."

This same principle probably applies to miscellaneous flying operations as well as to scheduled airlines and therefore admitted liability would be paid in cases where there was no legal liability because negligence could not be proved.

Individual Personal Accident Insurance

Individual personal accident policies cover injuries received by the insured due to an aircraft accident when such injuries result in death, dismemberment or total disability. For death and dismemberment the principal sum or one-half the principal sum as the case may be is paid, while for total disability weekly indemnity is paid for twenty-six or fifty-two weeks. The policy may be written to cover only while the insured is riding on a scheduled airline or it may cover while the insured is riding on any "C" or "NC" licensed aircraft.

The annual rates are approximately as follows, depending on the nature of the risk:

Death and Dismemberment	
Scheduled Airlines	$1.80 per thousand
Non-Scheduled	$15-$35 per thousand
Each $5 per week of Weekly Indemnity	
For 26 Weeks..............	25% of D & D rate
For 52 Weeks..............	35% of D & D rate

The Bureau of Air Commerce figures show that in 1937, the scheduled airlines flew 1,267,580 passengers and there were 51 passenger fatalities. No one knows exactly how many of these passengers flew more than once but the Air Transport Association of America estimates that during 1937 approximately 200,000 people flew once and for the first time. This leaves 1,067,580 passengers to represent repeaters who flew on an average of 2½ to 3 times: which means that 355,860 to 427,032 persons represent repeaters. Assuming therefore that 400,000 persons were repeaters, then approximately 600,000 different persons were passengers in 1937 of which 51 were killed. The death rate therefore was one in 11,765.

From this death rate it would appear that the scheduled airline rate of $1.80 per thousand is too high or else that very few people buy accident insurance which results in a lack of spread. This is probably the case because the countrywide experience of the Board of Aviation Underwriters for individual personal accident insurance, on both schedule and non-schedule flying combined, is as follows:

Policy Year	Premiums Written	Losses Incurred	Loss Ratio
1935	$107,389	$251,874	234.5%
1936	151,462	18,102	12.0
1937	72,790	71,505	98.2
3 Years	$331,641	$341,481	103.0%

Experience

The Hull and Casualty Insurance experience as filed by the Board of Aviation Underwriters with the New York Insurance Department is shown on exhibits attached to this paper. The exhibits give the countrywide written premiums, losses incurred and loss ratios for policy years 1932 to 1937, inclusive, reported as of December 31, 1937, separately for each coverage and each class. The premium for 1937 has not been adjusted to an earned basis. The Casualty experience is not separated for standard and excess limits and the exposure is not reported. The permissible loss ratio for aviation insurance is assumed to be 60% although the expense ratios of each of the Underwriting Groups are variable due to their different methods of operation. These statistics are used by the underwriters as a guide and not as a basis for rate-making.

The premium on scheduled airlines accounts for 45% of the total hull premium, 66% of the total casualty premium and 80% of the total passenger liability premium. The experience on scheduled airlines for the hull coverages has been favorable, the six year loss ratio being 43% but the passenger liability experience for this class is decidedly unfavorable, the six year loss ratio being 102%. The underwriters have been gradually increasing these passenger liability rates and hope that next year will show an improvement in this experience.

The six years' experience for the other classes excluding scheduled airlines, although limited, is favorable and shows: for hull insurance a loss ratio of 44%; for public liability, a loss ratio of 7%; for property damage a loss ratio of 11%; and for passenger liability, a loss ratio of 54%.

Conclusion

In conclusion, it must be pointed out that aviation insurance rate-making has made considerable progress during the past six years and it is to be hoped that the future development of this industry will eventually permit the application of actuarial science to this line of insurance.

Board of Aviation Underwriters
Countrywide Experience as of December 31, 1937

Class of Risk	Policy Year	Public Liability			Property Damage		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	34,162	14,996	43.9	32,046	5,217	16.3
	1933	51,492	4,538	8.8	41,760	3,046	7.3
	1934	61,856	2,619	4.2	35,851	7,756	21.6
	1935	51,116	9,825	19.2	38,423	7,197	18.7
	1936	51,506	2,266	0.4	50,401	5,922	11.8
	1937	32,162	91	0.3	32,242	3,940	12.2
Total.......		282,294	34,335	12.2	230,723	33,078	14.3
Industrial Aid	1932	22,033	5,506	25.0	15,467	825	5.3
	1933	17,193	. .	. .	13,538	551	4.1
	1934	14,428	1,587	11.0	12,717	153	1.2
	1935	15,522	60	0.4	12,162	1,779	14.6
	1936	17,112	. .	. .	13,236	1,584	12.0
	1937	26,341	. .	. .	21,442	535	2.5
Total.......		112,629	7,153	6.4	88,562	5,427	6.1
Flying Services	1932	27,362	2,595	9.5	24,485	3,886	15.9
	1933	17,501	13,372	76.4	14,776	6,948	47.0
	1934	16,591	4,356	26.3	16,920	3,186	18.8
	1935	27,098	4,479	16.5	23,962	1,392	5.8
	1936	30,126	55	0.2	20,703	6,441	31.1
	1937	23,852	4,282	18.0	13,925	5,775	41.5
Total.......		142,530	29,139	20.4	114,771	27,628	24.1
Manufacturers	1932	8,704	. .	. .	6,875	41	0.6
	1933	10,105	11	0.1	6,694	11	0.2
	1934	7,537	204	2.7	6,395	498	7.8
	1935	9,514	. .	. .	6,762	42	0.6
	1936	9,760	. .	. .	8,219	516	6.3
	1937	14,755	. .	. .	9,411	843	9.0
Total.......		60,375	215	0.4	44,356	1,951	4.4
Private Pleasure	1932	25,314	1,186	4.7	19,698	2,197	11.2
	1933	29,283	1,190	4.1	20,612	184	0.9
	1934	23,750	. .	. .	17,901	350	2.0
	1935	30,898	. .	. .	21,648	1,247	5.8
	1936	38,532	65	0.2	30,295	884	2.9
	1937	40,325	. .	. .	27,329	329	1.2
Total.......		188,102	2,441	1.3	137,483	5,191	3.8
Unclassified	1932	15,040	. .	. .	7,756	1,367	17.6
	1933	30,446	3	. .	15,154	1,235	8.1
All Classes Combined	1932	132,615	24,283	18.3	106,327	13,533	12.7
	1933	156,020	19,114	12.3	112,534	11,975	10.6
	1934	124,162	8,766	7.1	89,784	11,943	13.3
	1935	134,148	14,364	10.7	102,957	11,657	11.3
	1936	147,036	2,386	1.6	122,854	15,347	12.5
	1937	137,435	4,373	3.2	104,349	11,422	11.0
Total.......		831,416	73,286	8.8	638,805	75,877	11.9

Board of Aviation Underwriters
Countrywide Experience as of December 31, 1937

Class of Risk	Policy Year	Passenger Liability			All Third Party Liability		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	237,538	237,370	99.9	303,746	257,583	84.8
	1933	373,466	122,256	32.7	466,718	129,840	27.8
	1934	307,616	550,951	179.1	405,323	561,326	138.5
	1935	509,121	463,013	90.9	598,660	480,035	80.2
	1936	690,022	810,347	117.4	791,929	818,535	103.4
	1937	467,772	462,869	99.0	532,176	466,900	87.7
Total.......		2,585,535	2,646,806	102.4	3,098,552	2,714,219	87.6
Industrial Aid	1932	30,256	550	1.8	67,756	6,881	10.2
	1933	50,015	470	0.9	80,746	1,021	1.3
	1934	33,105	235	0.7	60,250	1,975	3.3
	1935	28,044	4,456	15.9	55,728	6,295	11.3
	1936	26,879	..	..	57,227	1,584	2.8
	1937	41,084	..	..	88,867	535	0.6
Total.......		209,383	5,711	2.7	410,574	18,291	4.5
Flying Services	1932	57,290	13,755	24.1	109,137	20,236	18.5
	1933	26,558	70,021	263.7	58,835	90,341	153.5
	1934	22,762	22,435	98.6	56,273	29,977	53.3
	1935	39,231	76,902	196.0	90,291	82,773	91.7
	1936	41,249	33,722	81.8	92,078	40,218	43.7
	1937	41,946	63,038	150.3	79,723	73,095	91.7
Total.......		229,036	279,873	122.2	486,337	336,640	69.2
Manufacturers	1932	9,044	..	..	24,623	41	0.2
	1933	9,967	..	..	26,766	22	0.1
	1934	5,677	..	..	19,609	702	3.6
	1935	6,223	845	13.6	22,499	887	3.9
	1936	6,217	..	..	24,196	516	2.1
	1937	8,632	26,383	305.6	32,798	27,226	83.0
Total.......		45,760	27,228	59.5	150,491	29,394	19.5
Private Pleasure	1932	15,963	386	2.4	60,975	3,769	6.2
	1933	21,904	77	0.4	71,799	1,451	2.0
	1934	19,531	3,727	19.1	61,182	4,077	6.7
	1935	26,047	741	2.8	78,593	1,988	2.5
	1936	39,633	12,330	31.1	108,460	13,279	12.2
	1937	34,887	20,000	57.3	102,541	20,329	19.8
Total.......		157,965	37,261	23.6	483,550	44,893	9.3
Unclassified	1932	1,786	..	..	24,582	1,367	5.6
	1933	6,805	..	..	52,405	1,238	2.4
All Classes Combined	1932	351,877	252,061	71.6	590,819	289,877	49.1
	1933	488,715	192,824	39.5	757,269	223,913	29.6
	1934	388,691	577,348	148.5	602,637	598,057	99.2
	1935	608,666	545,957	89.7	845,771	571,978	67.6
	1936	804,000	856,399	106.5	1,073,890	874,132	81.4
	1937	594,321	572,290	96.3	836,105	588,085	70.3
Total.......		3,236,270	2,996,879	92.6	4,706,491	3,146,042	66.8

Board of Aviation Underwriters
All Hull Lines Combined
Countrywide Experience as of December 31, 1937

Class of Risk	Policy Year	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	568,495	409,715	72.1
	1933	345,428	127,662	37.0
	1934	356,448	160,633	45.1
	1935	497,397	95,394	19.2
	1936	462,048	350,844	75.9
	1937	537,495	55,465	10.3
Total..............		2,767,311	1,199,713	43.4
Industrial Aid	1932	68,165	29,135	42.7
	1933	60,463	32,185	53.2
	1934	58,478	49,555	84.7
	1935	119,723	93,943	78.5
	1936	98,979	46,168	46.6
	1937	166,226	34,317	20.6
Total..............		572,034	285,303	49.9
Flying Services	1932	119,711	69,447	58.0
	1933	104,240	41,786	40.1
	1934	145,700	32,938	22.6
	1935	98,726	37,458	37.9
	1936	109,597	51,586	47.1
	1937	215,079	96,706	45.0
Total..............		793,053	329,921	41.6
Manufacturers	1932	140,486	110,815	78.9
	1933	163,966	81,488	49.7
	1934	169,172	58,053	34.3
	1935	222,117	104,376	47.0
	1936	313,066	156,659	50.0
	1937	307,893	34,063	11.1
Total..............		1,316,700	545,454	41.4
Private Pleasure	1932	64,071	69,607	108.6
	1933	68,620	12,079	17.6
	1934	76,147	46,373	60.9
	1935	94,114	33,698	35.8
	1936	147,888	100,879	68.2
	1937	178,986	25,902	14.5
Total..............		629,826	288,538	45.8
Unclassified	1932	13,539	17,225	127.2
	1933	15,223	4,852	31.9
All Classes Combined	1932	974,467	705,944	72.4
	1933	757,940	300,052	39.6
	1934	805,945	347,552	43.1
	1935	1,032,077	364,869	35.4
	1936	1,131,578	706,136	62.4
	1937	1,405,679	246,453	17.5
Total..............		6,107,686	2,671,006	43.7

Board of Aviation Underwriters
Countrywide Experience as of December 31, 1937

Class of Risk	Policy Year	Fire			Perils of Air		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	223,374	90,120	40.3	287,280	278,940	97.1
	1933	182,313	56,607	31.0	132,024	67,017	50.8
	1934	129,604	96,149	74.2	181,673	60,246	33.2
	1935	198,692	19,537	9.8	245,726	71,467	29.1
	1936	162,352	51,984	32.0	246,769	293,335	118.9
	1937	170,990	37,091	21.7	302,590	4,882	1.6
Total.......		1,067,325	351,488	32.9	1,396,062	775,887	55.6
Industrial Aid	1932	36,133	6,250	17.3	21,984	16,693	75.9
	1933	32,233	9,969	30.9	19,729	19,189	97.3
	1934	30,344	2,349	7.7	19,979	9,877	49.4
	1935	48,680	41,963	86.2	57,046	33,861	59.4
	1936	41,229	42,425	102.9	44,772	3,089	6.9
	1937	63,963	27,018	42.2	73,929	7,199	9.7
Total.......		252,582	129,974	51.5	237,439	89,908	37.9
Flying Services	1932	43,361	24,855	57.3	61,884	41,389	66.9
	1933	37,631	9,818	26.1	54,487	25,054	46.0
	1934	47,195	13,269	28.1	81,363	17,104	21.0
	1935	48,007	19,733	41.1	37,952	13,378	35.3
	1936	58,968	23,467	39.8	33,061	24,710	74.7
	1937	79,139	55,072	69.6	109,278	37,442	34.3
Total.......		314,301	146,214	46.5	378,025	159,077	42.1
Manufacturers	1932	31,292	3,453	11.0	98,622	106,388	107.9
	1933	27,446	..	..	127,244	81,488	64.0
	1934	30,956	..	..	122,215	57,091	46.7
	1935	32,132	224	0.7	180,652	103,701	57.4
	1936	48,473	255	0.5	246,124	152,793	62.1
	1937	37,899	..	..	252,975	30,111	11.9
Total.......		208,198	3,932	1.9	1,027,832	531,572	51.7
Private Pleasure	1932	42,674	50,326	117.9	9,556	11,073	115.9
	1933	47,265	6,241	13.2	8,067	2,703	33.5
	1934	50,214	23,281	46.4	14,472	14,211	98.2
	1935	69,016	28,663	41.5	5,492	1,674	30.5
	1936	89,532	24,510	27.4	28,754	1,091	3.8
	1937	113,352	16,016	14.1	26,465	8,796	33.2
Total.......		412,053	149,037	36.2	92,806	39,548	42.6
Unclassified	1932	6,750	16,250	240.7	5,309	334	6.3
	1933	8,083	2,965	36.7	5,717	1,576	27.6
All Classes Combined	1932	383,584	191,254	49.9	484,635	454,817	93.8
	1933	334,971	85,600	25.6	347,268	197,027	56.7
	1934	288,313	135,048	46.8	419,702	158,529	37.8
	1935	396,527	110,120	27.8	526,868	224,081	42.5
	1936	400,554	142,641	35.6	599,480	475,018	79.2
	1937	465,343	135,197	29.1	765,237	88,430	11.6
Total.......		2,269,292	799,860	35.2	3,143,190	1,597,902	50.8

Board of Aviation Underwriters
Countrywide Experience as of December 31, 1937

Class of Risk	Policy Year	Windstorm			Land Damage		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	31,794	40,114	126.2	22,092	375	1.7
	1933	22,939	2,001	8.7	4,956	1,364	27.5
	1934	24,993	2,510	10.0	11,546	1,612	14.0
	1935	33,037	2,466	7.5	12,679	1,623	12.8
	1936	27,581	778	2.8	16,472	4,747	28.8
	1937	35,488	658	1.9	21,006	334	1.6
Total.......		175,832	48,527	27.6	88,751	10,055	11.3
Industrial Aid	1932	5,603	2,396	42.8	3,040	3,611	118.8
	1933	4,923	3,027	61.5	2,101	. .	. .
	1934	4,175	33,981	814.0	2,152	17	0.8
	1935	6,287	18,119	288.2	4,577	. .	. .
	1936	5,884	. .	. .	4,225	210	5.0
	1937	11,649	. .	. .	10,352	100	1.0
Total.......		38,521	57,523	149.3	26,447	3,938	14.9
Flying Services	1932	7,990	1,836	23.0	4,574	1,150	25.1
	1933	7,655	4,048	52.9	2,857	2,866	100.3
	1934	8,269	16	0.2	4,696	1,782	37.9
	1935	6,308	2,782	44.1	3,772	256	6.8
	1936	8,787	659	7.5	5,352	2,676	50.0
	1937	11,611	3,151	27.1	7,091	985	13.9
Total.......		50,620	12,492	24.7	28,342	9,715	34.3
Manufacturers	1932	5,421	974	18.0	3,495	. .	. .
	1933	4,647	. .	. .	3,274	. .	. .
	1934	8,757	. .	. .	3,458	. .	. .
	1935	4,772	. .	. .	2,872	451	15.7
	1936	7,446	1,048	14.1	6,976	1,074	15.4
	1937	7,580	. .	. .	6,302	36	0.6
Total.......		38,623	2,022	5.2	26,377	1,561	5.9
Private Pleasure	1932	6,132	3,241	52.9	3,358	991	29.5
	1933	7,192	3,125	43.3	3,467	. .	. .
	1934	3,714	2,551	68.7	3,782	5,921	156.6
	1935	8,986	2,453	27.3	5,365	821	15.3
	1936	12,474	2,560	20.5	8,170	3,119	38.2
	1937	13,468	863	6.4	9,697	19	0.2
Total.......		51,966	14,793	28.5	33,839	10,871	32.1
Unclassified	1932	889	. .	. .	213	641	300.9
	1933	728	. .	. .	487	. .	. .
All Classes Combined	1932	57,829	48,561	84.0	36,772	6,768	18.4
	1933	48,084	12,201	25.4	17,142	4,230	24.7
	1934	49,908	39,058	78.3	25,634	9,332	36.4
	1935	59,390	25,820	43.5	29,265	3,151	10.8
	1936	62,172	5,045	8.1	41,195	11,826	28.7
	1937	79,796	4,672	5.9	54,448	1,474	2.7
Total.......		357,179	135,357	37.9	204,456	36,781	18.0

Board of Aviation Underwriters
Countrywide Experience as of December 31, 1937

Class of Risk	Policy Year	Theft			Mooring		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	3,955	166	4.2	..	..	..
	1933	3,196	673	21.1	..	..	..
	1934	7,567	116	1.5	1,065	..	..
	1935	6,246	301	4.8	1,017	..	..
	1936	6,989	..	..	1,885	..	..
	1937	5,760	..	..	1,661	12,500	752.6
Total.......		33,713	1,256	3.7	5,628	12,500	222.1
Industrial Aid	1932	1,405	185	13.2	..	..	..
	1933	1,477	..	..	..	..	..
	1934	1,059	114	10.8	769	3,217	418.3
	1935	1,692	..	..	1,441	..	..
	1936	1,846	71	3.9	1,023	373	36.5
	1937	4,424	..	..	1,909	..	..
Total.......		11,903	370	3.1	5,142	3,590	69.8
Flying Services	1932	1,902	217	11.4	..	..	..
	1933	1,610	..	..	..	..	..
	1934	2,265	767	33.9	1,912	..	..
	1935	2,350	216	9.2	337	1,093	324.3
	1936	2,251	74	3.3	1,178	..	..
	1937	4,117	15	0.4	3,843	41	1.1
Total.......		14,495	1,289	8.9	7,270	1,134	15.6
Manufacturers	1932	1,656	..	..	..	..	..
	1933	1,355	..	..	..	..	..
	1934	1,491	..	..	2,295	962	41.9
	1935	1,300	..	..	389	..	..
	1936	3,063	102	3.3	984	1,387	141.0
	1937	2,036	..	..	1,101	3,916	355.7
Total.......		10,901	102	0.9	4,769	6,265	131.4
Private Pleasure	1932	2,351	3,976	169.1	..	..	..
	1933	2,629	10	0.4	..	..	..
	1934	2,641	409	15.5	1,324	..	..
	1935	3,200	87	2.7	2,055	..	..
	1936	4,177	75	1.8	4,781	69,524	1,454.2
	1937	5,415	208	3.8	10,589	..	..
Total.......		20,413	4,765	23.3	18,749	69,524	370.8
Unclassified	1932	378	..	..	..	..	..
	1933	208	311	150.0	..	..	..
All Classes Combined	1932	11,647	4,544	39.0	..	..	..
	1933	10,475	994	9.5	..	..	..
	1934	15,023	1,406	9.4	7,365	4,179	56.7
	1935	14,788	604	4.1	5,239	1,093	20.9
	1936	18,326	322	1.8	9,851	71,284	723.6
	1937	21,752	223	1.0	19,103	16,457	86.2
Total.......		92,011	8,093	8.8	41,558	93,013	223.8

WATCH YOUR STATISTICS!

A Partial Statistical Guide for Non-Actuaries

BY

G. F. MICHELBACHER

The Old Mandarin
Always perplexes his friend the Adjuster
At the Prune Exchange Bank
By adding his balances together
In the Chinese fashion.
For example: he once had $5,000 in the bank
And drew various checks against it.
He drew $2,000; thus leaving a balance of $3,000
He drew $1,500; thus leaving a balance of $1,500
He drew $ 900; thus leaving a balance of $ 600
He drew $ 600; thus leaving a balance of $ 000
$5,000 $5,100
Yet, as you see, when he adds his various balances
He finds that they total $5,100
And the Old Mandarin therefore maintains
There should still be $100 to his credit.
They had to engage the Governor of the Federal Reserve
To explain the fallacy to him.

"Unearned Increment" from
"Mandarin in Manhattan"
by Christopher Morley.

I.

An incident of the casualty insurance business has been the production of a large volume of statistical data which governs almost every action we take. In fact, some critics assert that we casualty men are in grave danger of substituting statistics for common sense and personal judgment in the conduct of our affairs.

The construction of basic manual rates; the application to individual risks of experience, equity and retrospective rating; the testing of rates and rate levels for adequacy and reasonableness; the determination of the necessity for, the points of attack and the efficiency of preventive measures; the appraisal of the success or failure of the underwriting policies of an insurance carrier in a territory, in an agency, in an individual underwriting department or during a certain period of time; the compilation of assets and liabilities for financial statements; these and many other operations require the use of statistical information laboriously tabulated in minute detail. Statistics unquestionably have become an indispensable factor in our daily business life.

Experts prepare this vast aggregation of statistical data: but once the information has been compiled and published, its subsequent interpretation is not confined to individuals with adequate statistical training. Agents and brokers, policyholders, chart makers, insurance counsellors, special agents, underwriters, claim adjusters, payroll auditors, inspectors, public officials, attorneys representing chambers of commerce, manufacturers' associations and labor unions, trade press editors, legislators and many other persons frequently use statistics and their conclusions are sometimes so incomprehensible as to pass all human understanding.

Like others among our membership, I have spent a considerable part of my time attempting to prevent the improper use of statistics. This is a never-ending task because each successive crop of new participants in the business must be educated in this important subject. It has occurred to me that a compilation of some of the fundamental rules of statistical analysis and interpretation might be useful in this educational process and it is with that thought that I have prepared this paper.

II.

No discussion of this subject would be complete without reference to a fundamental difficulty created by the use of both the policy year and the calendar year methods of accounting in our statistical procedure. The existence of various statistical exhibits, some compiled on one and some compiled on the other of these two bases, is confusing enough; but when we employ both types of information in the solution of a single problem, the opportunities for misunderstanding are multiplied. For example, in workmen's compensation insurance rate-making, pure premiums are based upon Schedule Z classification experience (a policy year record), expense loadings are predicated upon expense analyses taken from the Casualty Experience Exhibit (a calendar year record of national experience by lines of coverage) and rate levels are based upon calendar year loss-ratio data. Again, in the Annual Statement, assets, liabilities and the underwriting and investment exhibit are all compiled on a calendar year basis; but one of the most important appended schedules, Schedule P (calculation and testing of loss reserves for workmen's compensation and liability insurance), contains figures on a policy year basis. No wonder our friends who lack statistical training become perplexed when they seek to comprehend these situations.

As every expert knows, there are excellent reasons for the compilation of both policy year and calendar year statistics.

The policy year account is a complete record of exposure, premium and loss transactions on policies which became effective during a given period of time, irrespective of when these transactions may actually have taken place. For example, if workmen's compensation insurance is the subject, the experience of policy year 1937 will include, eventually, the complete payrolls, premiums and incurred losses on policies issued to become effective during the twelve months of 1937. Since workmen's compensation insurance policies are usually issued for periods of twelve months each, the last policy included in the 1937 account (effective on December 31, 1937) will not expire until December 31, 1938. Then some time must elapse during which audits may be made and delayed notices of accident may be received. During 1939 the facts with regard to payrolls and premiums will become definitely known. By this time, all the accidents properly chargeable against this particular group of policies may have been reported, also, but since the resulting claims probably will not be entirely liquidated at once and the deferred loss liability must be estimated, several years must elapse before the ultimate incurred losses are definitely ascertained.

The policy year record usually is compiled at periodical intervals and since only the transactions of a certain group of policies are involved, a complete experience is gradually produced which is readily assembled in any desired arrangement such, for example, as a grouping of policies for a manual classification or for an individual agency.

The policy year method possesses both strength and weakness. Its strength is obvious since it is the only way an ultimate experience record can be obtained for a particular group of policies. Its weakness arises out of the fact that time must elapse before the outlines of the experience emerge in definite and final form. As indicated, knowledge of all the transactions of a given policy year does not become available until the second succeeding calendar year. In the interim, assumptions must be made with regard to earned exposure, earned premiums and deferred loss liability and this increases the difficulties of interpreting the data. I need not dilate upon the rate-making problem created by this "gap" in the experience record because that has been the subject of much discussion before this Society.

It must be obvious that the policy year method, valuable as it is for certain purposes, has its limitations as a statistical process. It can only be used satisfactorily where the separate items of data relate to individual policies (because it is the effective date of the individual policy that governs the classification of the data by years of account).

Certain transactions in the insurance business cannot be allocated that way. Expense items, generally, fall in this category. Imagine the difficulty of allocating every item of expense to each of several million policies! Similarly, the data with regard to a carrier's financial structure or its operating results are not referrred back to individual policies: assets and liabilities and underwriting and investment results must necessarily be compiled as they arise or as they change from day to day. A different accounting method is needed to fit these chronological requirements and this record is known as a calendar year account.

It must be obvious that the two accounting methods produce entirely different statistical results. While the policy year method establishes the experience of a certain group of policies, the calendar year method develops a running account of daily operations as they occur during a given period. A record of workmen's compensation experience for calendar year 1937, for example, would comprise the aggregate net balances at December 31, 1937 of all the payroll, premium and incurred loss transactions occurring during the twelve calendar months of 1937, irrespective of the effective dates of the policies on which these transactions arose. And since such a calendar year record is not segregated by manual classifications, it might include, also, an analysis of expenses allocated to the workmen's compensation business. Given earned premiums, incurred losses and incurred expenses, the underwriting profit or loss for the year can be ascertained.

The advantage of such calendar year experience is that it represents conditions presently prevailing in the field of workmen's compensation insurance. Hence its use for the determination of expense loadings and for the establishment of rate levels.

III.

A discussion of some of the difficulties arising in connection with the interpretation of agency experiences compiled on a policy year basis will still further clarify the differences between the two foregoing accounting methods.

Carriers periodically compile the experience of their agencies by lines of business. The information thus obtained is used as a guide in the underwriting treatment of each agent's business. It is very important, therefore, that the agent and employees of the carrier should be able to agree upon a reasonable interpretation of the data.

For reasons already stated, the policy year method is best adapted to the preparation of agency experiences; but some carriers use the calendar year method for this purpose and an agent may have become familiar with calendar year experiences before he has an opportunity to analyze a policy year experience. In spite of explanations accompanying the policy year exhibit, the agent usually will have difficulty in interpreting the experience.

Naturally, the agent will desire to check the carrier's record against his own data. The carrier exhibit shows written premiums; are these premiums comparable with premiums on his books? He has before him, let us say, an experience compiled as of December 31, 1937, by policy years, terminating with 1937. He consults his accounts current to see what premiums he wrote for the carrier in 1937 and he discovers to his surprise that the two sets of figures do not jibe. Which set is correct?

The likelihood is that both sets of figures are correct. The answer is this: the agent's premiums are compiled on a calendar year basis. He records on his books every premium transaction as it occurs from January 1, 1937 until he closes his books on December 31, 1937. To obtain premiums comparable with those contained in the carrier's policy year exhibit, he would have to re-classify all of these transactions according to the effective dates of the policies on which they arose. If he did this, he might discover that substantial audit premiums on 1936 policies, entered on his records during calendar year 1937, account for the fact that his books show written premiums of $50,000 for 1937, while the agency experience exhibit shows written premiums of only $35,000 for policy year 1937. In the agency experience the audit premiums on 1936 policies are included in the 1936 policy year account.

With this point cleared up, the agent proceeds to examine the losses in the carrier's policy year exhibit. He has a record of loss payments and he knows that an important automobile public liability claim was disposed of during 1937 by a payment of $2000. He is mystified because the experience exhibit shows incurred automobile public liability losses for 1937 of only $500. Has he discovered another error?

The answer is "no" because the claim which was finally settled in 1937 for $2000 arose on a policy which became effective in 1936. It will, therefore, appear in the 1936 policy year account in the agency experience exhibit although it was settled in 1937. If the carrier has maintained a reserve of exactly $2,000 against the claim, the latest compilation of the 1936 policy year account shows the transfer of the loss from the "outstanding" to the "paid" column without a change in the incurred losses. If the reserve has been $1,500, the 1936 account now shows an increase of $2,000 in paid losses, a reduction of $1,500 in outstanding losses and an increase of $500 in incurred losses. If the reserve has been $2,500, the paid losses for 1936 are increased by $2,000, the outstanding losses are reduced by $2,500 and the incurred losses, therefore, are reduced by $500.

This point is clarified, and the agent begins to comprehend the strange statistical exhibit which has been placed at his disposal. He accepts the written premium and loss figures as correct and undertakes to calculate some loss ratios. To do this he must establish earned premiums for the several policy years. Here he runs into another snag, particularly when he examines the experience for the latest policy year.

He is accustomed to the calendar year formula for calculating earned premiums:

Earned premiums for calendar year 1937
equal
Unearned premium reserve December 31, 1936
plus
Written premiums for calendar year 1937
minus
Unearned premium reserve December 31, 1937

In this formula there is a "carry-over" of the unearned premium reserve from the preceding year. In the policy year exhibit nothing of the sort appears to have been done. Why? Simply because the policy year record for 1937 begins with transactions on policies effective on January 1, 1937 and consequently cannot possibly include any items ante-dating 1937. By the same token, no losses are carried over either so that a loss ratio based upon the estimated earned premiums of the 1937 policy year and the incurred losses of that policy year is confined to and properly reflects the character of the business which was placed on the books during 1937.

And so at long last I come to the first rule of statistical interpretation:

RULE I.

Always make certain whether the statistical data under consideration were compiled by the policy year or the calendar year method of accounting. Never, under any circumstances, attempt a comparison of two sets of data unless both are prepared by the same method of accounting.

IV.

The statistical factor most extensively used in our business is the "loss ratio." Rates of insurance contain a specific factor for the payment of losses ("pure premium"). By comparing this "pure premium" with the gross rate, the "permissible loss ratio" may be ascertained. This represents the percentage of premium income which may be spent for incurred losses without producing either an underwriting profit or an underwriting loss. The actual loss ratio produced by the experience of an insurance carrier, an agency, a risk or a group of risks, a manual classification, a territory, or a period of time, when compared with the permissible loss ratio, provides a simple test of underwriting results. If the actual loss ratio is lower than the permissible loss ratio, an underwriting profit is indicated; if it is higher, the reverse condition may be inferred. In the nature of things, it would be regarded as purely accidental if the actual and permissible loss ratios should coincide.

The use of the loss ratio for testing underwriting results would seem at first blush to involve no peculiarly difficult problems. The process looks simple; but this is another case where looks are deceptive. There are numerous opportunities for misunderstanding unless the person seeking to interpret an experience fully appreciates the nature of the loss-ratio formula.

The loss ratio is a ratio of losses to premiums; but there are some twelve combinations of these factors to choose from. On the loss side of the equation any one of the following items may be selected:

1. Paid losses, excluding both allocated and unallocated claim expenses.
2. Paid losses, including allocated claim expenses.
3. Paid losses, including both allocated and unallocated claim expenses.
4. Incurred losses (paid and outstanding), excluding both allocated and unallocated claim expenses.
5. Incurred losses, including allocated claim expenses.
6. Incurred losses, including both allocated and unallocated claim expenses.

On the premium side the choice lies between two items:

1. Written premiums.
2. Earned premiums.

With this array of loss ratios available, one person may make one choice and another person may make another: under these circumstances an attempt to compare notes will surely fail because the two are not talking the same language. Obviously the first essential, before drawing conclusions from loss ratios, is a definition of the factors constituting them.

Actuaries will agree, I believe, that the closest approximation to the truth is obtained by comparing one of the *incurred* loss figures with *earned* premiums. Yet each spring we are deluged with endless compilations of loss ratios which involve comparisons of *paid* losses with *written* premiums. I cannot imagine any set of data which is more likely to create misunderstanding!

The paid loss-written premium ratio increases in value as the volume of the data used for the computation of the ratio increases. But even under the best conditions, this particular loss ratio is not entirely dependable. Let us take, for example, the largest and latest compilation of calendar year experîence which we have—the Casualty Experience Exhibit for Calendar Year 1937—and compute loss ratios on the two bases:

National Experience for Stock Companies Entered in New York State — All Lines

Net Premiums Written	$627,839,420
Net Premiums Earned	610,729,241

	Ratio to Written Premiums	Ratio to Earned Premiums
Net Losses Paid (Excluding Allocated and Unallocated Claim Expenses)	38.2%	39.2%
Net Losses Incurred (Excluding Allocated and Unallocated Claim Expenses)	40.6	41.7
Net Claim Expenses Incurred (Allocated and Unallocated)	9.2	9.4

Assuming that the ratio of incurred losses to earned premiums is the correct loss ratio, it will be noted that there is an error of 3.5 points (or 8.4%) in the ratio of paid losses to written premiums. If claim expenses are included with losses, the comparison is between the incurred loss-earned premium ratio of 51.1% and the paid loss-written premium ratio of 47.4%. The error here is 3.7 points (or 7.2%).

When the aggregate national experience is broken down by lines, the error in the paid loss-written premium ratio naturally tends to increase. Take, for example, the surety experience from the Casualty Experience Exhibit for calendar year 1937:

National Experience for Stock Insurance Companies Entered in New York State — Surety Bonds

Net Premiums Written	$39,022,963
Net Premiums Earned	$39,742,296

	Ratio to Written Premiums	Ratio to Earned Premiums
Net Losses Paid (Excluding All Claim Expenses)	20.7%	20.3%
Net Losses Incurred (Excluding All Claim Expenses)	17.1	16.8
Net Claim Expenses Incurred (Allocated and Unallocated)	9.6	9.4

Here conditions are reversed and the paid loss-written premium ratio exceeds the incurred loss-earned premium ratio, the comparison being between ratios of 20.7% and 16.8%, excluding claim expenses, and 30.3% and 26.2%, including claim expenses.

As a next step let us compare the two loss ratios from the national experience of a single carrier on one line of business. The line is workmen's compensation insurance and the experience record is taken year by year, beginning with the first year of the carrier's operations.

Calendar Year	Ratio of Paid Losses (Excl. Claim Expenses) to Written Premiums	Ratio of Incurred Losses (Excl. Claim Expenses) to Earned Premiums
(Column 1)	(Column 2)	(Column 3)
1	3.7%	98.7%
2	24.4	74.6
3	37.6	66.0
4	52.9	82.3
5	70.7	59.9
6	68.4	81.0
7	79.0	61.0
8	73.7	74.6
9	55.8	60.7
10	49.4	74.7
11	44.7	63.5
12	44.8	54.2

Note the wide fluctuations between the two sets of loss ratios and the extent to which the paid loss-written premium ratios depart from the more reliable indications. Could anyone place the slightest dependability upon the erratic ratios in the second column of the exhibit?

Under the circumstances, what possible excuse exists for carrying the process further and presenting paid loss-written premium ratios by individual carriers for each line of business written in a single state? The latter loss ratios lose all meaning and closely approach absurdity when minus premium and minus loss figures are produced as is sometimes the case.

It is my hope that the paid loss-written premium loss ratio will some day disappear from the casualty insurance business! If this happy day should ever arrive, a prolific source of confusion and error will have been removed.

Before we leave the subject of loss ratios, another common error should be mentioned. It arises out of attempts to compare loss ratios for carriers whose business is not uniformly distributed by lines of coverage. Let us assume that the permissible loss ratio (excluding claim expenses) for the bonding lines is 45%, whereas the corresponding permissible loss ratio for workmen's compensation insurance is 62%. One carrier writes business exclusively in the bonding field; another specializes in workmen's compensation insurance. It is obvious that a loss ratio of 50% would produce an underwriting loss for the first carrier, whereas a loss ratio as high as 60% would produce an underwriting profit for the second carrier. Would a comparison of loss ratios for the two carriers have any evidential value whatever?

This is a simple example, but it illustrates the point exactly. Each line of business has its own permissible loss ratio and failure to give proper weight to this fact may vitiate any comparison of aggregate loss ratios for multiple-line carriers.

The extent to which the distribution of business by lines may influence the aggregate loss ratios of two carriers is shown by the following example:

Line	Casualty Experience Exhibit — 1937 Loss Ratio (Excl. Claim Expenses)	Earned Premiums	
		Carrier I	Carrier II
Automobile Public Liability.	58.9%	$ 600,000	$ 500,000
Automobile Property Damage Liability	53.5	150,000	150,000
Workmen's Compensation ...	61.5	3,000,000	500,000
Liability (Other than Auto) .	48.6	1,000,000	250,000
Fidelity	28.3	100,000	1,250,000
Surety	26.2	50,000	1,500,000
Plate Glass	50.4	50,000	100,000
Burglary and Robbery......	29.0	50,000	750,000
		$5,000,000	$5,000,000

Here are two carriers with equal volumes of business, with identical loss ratios, line by line and with similar underwriting results. Yet if we weight these loss ratios with the earned premium figures, we find to our astonishment that the average loss ratios are as follows:

	Average Loss Ratio
Carrier I..................	56.9%
Carrier II.................	36.4

Obviously it is dangerous to compare aggregate ratios unless the distribution of business is fairly uniform from carrier to carrier: even then such comparisons will produce results only approximately accurate.

RULE II.

When using a loss ratio, make an analysis to determine the basis upon which it has been calculated and the elements which it represents. Regard with extreme skepticism any loss ratio other than a ratio of incurred losses to earned premiums. When comparing loss ratios, be certain that they are truly comparable in the sense that they both include the same elements of paid losses, claim expenses and loss reserves; that they are both related to the same premium base; that they are both on either a calendar year or a policy year basis; and that they both represent the same line of business, or, if several lines are involved, that they represent a uniform distribution of premium volume among the several lines.

V.

We come now to the interpretation of experience for underwriting and rate-making purposes. A risk is presented for consideration accompanied by a record of past experience from which loss ratios and indicated pure premiums (ratio of incurred losses to earned exposure) may be determined. Questions arise with regard to the quality of the risk and the adequacy, fairness and reasonableness of the rates which should be paid for a certain insurance coverage. Policyholder, producer and carrier representative are all interested. The interpretation of the risk experience becomes a matter of vital importance upon which all interested parties must agree.

Two methods of approach suggest themselves:

1. The loss ratio for the risk may be compared with the permissible loss ratio to determine where the risk stands with regard to the average of its class which is represented by the manual rate, or
2. The indicated pure premium for the risk may be utilized to compute a rate without regard for the manual or any other plan of rating.

In either event, the credibility of the risk experience must be established.

Of course, we have experience rating formulae which are designed to measure, scientifically, the evidential value of risk experience; but, in practice, even where the risk is experience rated, it is necessary to justify the result and discussions involving risk experience cannot be avoided. The error which is most commonly made in these discussions is to place too much value upon a risk experience which, upon analysis, is found not to include a complete distribution of all types of losses. Two illustrations will demonstrate this point:

> *Example 1*: A large Illinois bakery risk, insured for workmen's compensation insurance, is up for renewal and question arises whether the renewal rate is proper. The policyholder is considering some form of competing insurance and the agent is interested in securing the lowest possible rate. The carrier underwriting executive is sympathetic, but he insists that the risk rate shall be unqualifiedly adequate. The risk experience is available and the underwriter concedes that the rate for the risk shall be computed upon this experience. Then the fun begins.
>
> The risk experience covers a full two-year period and discloses the following facts:
>
> | | |
> |---|---|
> | Earned Payroll | $2,000,000 |
> | Indicated Pure Premium | $.51 |
>
> The benefits of the workmen's compensation law have been uniform over the experience period and no change is now contemplated.
>
> Assuming an expense ratio of 40%, the rate indicated by the risk experience would be $.85 ($.51 ÷ .60). The agent insists that this rate shall be promulgated; but the underwriter calls for an analysis of the losses in the risk experience and discovers that they do not include any so-called "serious" losses. Obviously the risk experience is deficient, since "serious" losses may be expected inevitably to occur if the risk is carried for a sufficiently long period of time.
>
> How shall the missing element be supplied? In the absence of experience for the risk itself, the logical plan is to take the "serious" pure premium from the Illinois classification experience for bakeries. This is $.15 which, when added to the $.51 pure premium for the risk, produces a "complete" pure premium of $.66. On this basis the risk rate would be $1.10.
>
> *Example 2*: A similar competitive situation arises on an automobile fleet of one hundred light, class four, commercial vehicles. Public liability coverage has been written at manual rates for limits of $25,000/$50,000 and two years of experience

> are available. Thirty public liability accidents are included in this experience with an aggregate incurred cost of $5,640 (excluding unallocated claim expense). No individual claim has produced an incurred cost in excess of $500. The actual loss ratio is 44.4%. The agent argues that the risk has been extremely profitable (since the permissible loss ratio is 55%) and he requests a substantial credit for the renewal policy.
>
> Again the underwriter goes to work. He discovers that there is experience available showing the distribution of public liability losses for commercial vehicles by amounts of loss. This experience discloses that commercial vehicles, during one complete calendar year, produced 36,862 public liability claims of $500 or under against 5,487 such claims between $501 and $5,000. The amounts expended were $3,732,073 for "under $500" claims and $9,461,473 for "over $500" claims, or a total of $13,193,546. Eighty-seven percent of the public liability claim settlements were under $500 and 13% were over $500, but the percentages of monetary losses were 28.2% for the former and 71.8% for the latter.
>
> Fortified by this information, the underwriter is prepared to analyze the risk experience. He first divides the premium received into two parts (a) for manual limits of $5,000/ $10,000 (b) for excess limits, and considers each element separately. These amounts for the two-year period are (a) $10,000 and (b) $2,700. Obviously the risk experience provides no basis for determining the cost of insurance for that part of the coverage for limits in excess of $5,000/$10,000 since it contains no losses in excess of $500. The $2,700 premium for excess limits, therefore, is not affected by the risk experience.
>
> The two-year manual premium received for standard limits is $10,000. On the basis of the general experience above referred to, 28.2% of $10,000, or $2,820, represents expected losses "under $500." This compares with losses actually produced by the risk of $5,640. The risk having produced actual losses double the expectancy, it is certain that it is not entitled to rates below manual. If any adjustment in rates is indicated, it should be in the nature of a debit rather than a credit.

While these examples deal with individual risk experience, the same line of reasoning is applicable, of course, to the interpretation of experience for classes of risks, territories and lines of coverage, particularly where the volume of data is limited.

Rule III.

Before attempting to interpret the indications of an experience exhibit, establish the degree of dependability of the data. Where actuarial formulae are not available for measuring the credibility of statistical information, a simple rule is this: never accept an experience indication as definitely reliable unless an examination discloses that the data are completely representative of losses of all types which may reasonably be expected to occur. Any deficiency discovered in the process of analysis must be supplied by personal judgment or from another statistical source before the experience can be accepted as a basis for forming an opinion.

VI.

In appraising the financial strength or the underwriting results of a carrier, it is essential that the analyst should be able to determine the adequacy or redundancy of the aggregate loss reserve. If the management of a carrier fails to establish sufficient reserves, its underwriting results actually are less favorable than they are represented to be and the "policyholders' surplus," constituting the cushion behind its obligations to policyholders, is something less than the figure published in its financial statement. It is easy to understand, therefore, why there is a widespread demand for a rule-of-thumb method of testing the adequacy of loss reserves. Unfortunately, however, this is another problem for which there is no such simple, "short-cut" solution.

A method widely used by chart makers is this:

1. Select a group of carriers whose loss reserves are assumed to be unqualifiedly adequate. Obtain a ratio by relating the aggregate loss reserves of this group to the aggregate written premiums for the latest calendar year.
2. Calculate the corresponding ratio for the carrier whose loss reserve is being analyzed.
3. Compare the two ratios. If the ratio for the carrier whose loss reserve is being tested is equal to or in excess of the group ratio, the loss reserve of the carrier is adequate; otherwise, the likelihood is that the reserve is inadequate.

There are obvious reasons why such a comparison is worse than useless. Incidentally, this is a good place to introduce a rule which, if universally accepted, would save all of us many unnecessary explanations.

Rule IV.

In making analyses between insurance carriers of underwriting experience or financial statements, the use of written premium figures should be limited to comparisons of (a) aggregate premium volume and (b) distribution of premium volume by lines of coverage.

Any comparison of two carriers' ratios of loss reserves to written premiums (or earned premiums, for that matter) is of no value whatever unless four factors are uniform in the two organizations —and since, in the very nature of things, this condition infrequently exists, it follows that such comparisons should be scrupulously avoided. The four factors are as follows:

1. *Premium distribution by lines of coverage.*

This is important where the aggregate loss reserve is compared with the aggregate premium volume, for the loss reserve varies materially according to the obligations assumed under the different types of insurance contracts.

In lines such as burglary and robbery insurance or plate glass insurance, losses are promptly adjusted after the loss occurs. The claim occurs; as a rule, the liability of the carrier may be easily and quickly determined; and the claim is paid. There is no necessity to accumulate a large reserve against deferred loss liabilities.

In lines such as workmen's compensation insurance and liability insurance, on the other hand, losses may not be disposed of so expeditiously. In workmen's compensation insurance, barring lump sum settlements and compulsory payments into State Funds, serious injury and fatal cases may involve pension payments extending over long periods of time. The reserve required to provide funds for these future payments gradually accumulates and in time assumes large proportions. In liability insurance, litigation may be necessary to determine questions of liability and amount of claims and since the legal mills generally grind slowly, the deferred liability in this line grows with the passage of time and adequate provision must be made for future liquidation of claims as they mature. (Incidentally, the valuation of pending liability claims involves the exercise of personal judgment to a greater extent than does the valuation of claims of any other type).

Now assume that one carrier specializes in burglary, robbery and plate glass insurance and another in workmen's compensation and liability insurance: would any sane person place the slightest value on a comparison of ratios of loss reserves to written premiums for the two carriers?

"Well," say the rule-of-thumb advocates, "we recognize the validity of this criticism and we will overcome it by making separate comparisons for individual lines of coverage. Will that make the test acceptable?" The answer is "no" for other reasons which will now be discussed.

2. *Territorial distribution of premium volume by lines of coverage.*

Let us assume that comparisons are made by lines of coverage: then the geographical distribution of business becomes of extreme importance. Take workmen's compensation insurance for illustration.

Each state has its own workmen's compensation law which prescribes benefits and claim procedure. If one carrier has the bulk of its business in a state with high benefits for serious injury or death, involving the payment of pensions for long periods of time, and another carrier has the bulk of its business in another state with low benefits where no claim can possibly involve pension payments extending beyond a limited period of time (say, six years), the loss reserve of the first carrier will soon bear a much higher relationship to its current premium writings than will the loss reserve of the second carrier.

There are similar considerations in the field of liability insurance where such conditions as average claim cost, frequency of litigation, attitude of the legal profession and functioning of the courts vary widely from one section of the country to another and even from one city to another. If one carrier has its liability business largely concentrated in Boston and New York City and another carrier obtains the bulk of its liability premium income from the Pacific Coast states, the liability loss reserve of the first carrier will soon outstrip that of the second carrier even though both may write equal volumes of business.

3. *Age of carrier.*

A carrier transacting such lines of coverage as workmen's compensation and liability insurance over an extended period of time gradually accumulates a large number of long-term pension cases and lawsuits, involving serious injuries and fatalities. As these expensive claims accumulate, the carrier's loss reserves will naturally reflect this condition. A younger carrier, in the process of building its business, during its early years will have in its files a distribution of claims which will not be normal in the sense that the ratio of serious long-term, expensive claims will be low in comparison with the total number of open claims awaiting final disposition.

Obviously it would be wrong, even if the comparison were made by lines of coverage, to compare the ratio of the loss reserve to current premium income of a carrier celebrating its twenty-fifth anniversary with the corresponding ratio of another carrier just entering the fifth year of its existence.

In this connection a recent development in the field of workmen's compensation insurance may be mentioned. The laws of several states now require carriers to commute pension claims and to pay the present value of future payments into a State Fund from which claimants will henceforth receive benefits as they fall due. A new carrier restricting its business to one of these states would have absolutely no loss reserves on its books for serious workmen's compensation claim, whereas an older carrier which had been doing business long before this procedure became effective would have on its books many hold-over claims from the period prior to its inauguration.

4. *Trend of premium income.*

This factor is important because while the loss reserve is necessarily a growing and expanding account because it represents an ever increasing accumulation of liabilities from past operations, the method of testing the loss reserve under discussion consists of a comparison of the accumulated reserve with *current, annual premium income.*

If one carrier having reached its peak of production five years ago, is today writing only half as much business as it wrote at the zenith of its career and another carrier has gradually and consistently increased its premium volume over the years and is today writing twice as much business as it wrote five years ago, even if both carriers are of exactly the same age and have exactly the same distribution of business by lines and territories, it is obviously improper to compare their accumulated loss reserves with their *present-day premium volumes.*

It must be concluded, I believe, that such comparisons as between carriers are improper. This rule is particularly true for multiple-line carriers, whose workmen's compensation and liability loss reserves usually aggregate seventy-five percent or more of the total loss reserves. Does this mean that there is no method by which the loss reserves of a carrier may be tested for adequacy? Not at all; but the procedure is a laborious one. A method exists and the material for its application may be found in Schedules "G," "O," and "P" of the Annual Statement; which brings me to the next rule:

> RULE V.
>
> *The proper method of checking the adequacy of loss reserves is to study the reserve for each line separately and to develop at successive intervals the incurred cost of the claims of a group of policies or of a certain period of time. As time passes and the facts with regard to these claims become more and more definitely established, it is possible to make an increasingly accurate appraisal of their ultimate value. A comparison of the latest estimate of incurred losses with estimates which were established at previous intervals will show the extent to which outstanding claims were properly appraised in their earlier stages.*

VII.

The corresponding "rule-of-thumb" method commonly used for testing the adequacy of the unearned premium reserve of an individual carrier produces similarly erroneous conclusions.

Upon analysis, two facts immediately stand out:

1. The unearned premium reserve is calculated by mathematical formula, so that the element of personal judgment which is such an important factor in determining the aggregate loss reserve, does not enter into the transaction at all. For this reason, there really is no point in attempting to test the adequacy of the reserve.
2. The unearned premium reserve is based not upon the premiums written by the carrier during a given calendar year, but upon a special premium exhibit which produces what is known as the "Insurance in Force." Invariably a wide difference exists between "Written Premiums" and "Insurance in Force."

The purpose of the "Insurance in Force" exhibits being to determine the unearned premium reserve, it follows that it should represent premiums on policies under which there is future coverage. For it is only in these cases that a portion of the premium must be held in reserve to meet future losses and expenses and to provide for the ever-present possibility that the individual policy may be cancelled by one party or the other, thus necessitating the return to the policyholder of a portion of the deposit premium. On this theory, there are two types of transactions which affect written premiums and premiums in force in entirely different ways.

1. *The first is audit and installment premiums.* Assume that an interim audit on a workmen's compensation insurance policy develops an additional premium: this is added to the written premium account; but since it is already fully earned when the additional premium is established, it does not affect the premiums in force account at all.
2. *The second is return premiums on cancelled policies.* Assume an annual policy with a deposit premium of $1,000 is cancelled by the carrier at the end of six months of coverage; a return premium of $500 must be paid to the policyholder. This is deducted from the written premium account; but because the policy is no longer in force, the necessity of maintaining an unearned premium reserve against it has terminated and the full deposit premium of $1,000 is deducted from the premium in force account.

There are, of course, other differences in the two accounts; but these two factors will largely explain the reasons for the discrepancy between them.

Obviously the differences between written premiums and insurance in force will depend upon the distribution of the business of the carrier because the conditions with regard to audit and installment premiums and cancellations are not uniform from line to line.

One carrier may specialize in large workmen's compensation insurance risks, all written at nominal deposit premiums and subject to monthly audits of payroll exposure. This carrier's premiums in force will be small in comparison with its written premiums, and the ratio of unearned premiums to written premiums would be low.

Another may write exclusively public liability insurance on buildings of various types with policies issued for annual terms at definitely determined premiums payable at the inception of coverage. This carrier's premiums in force would approximate its written premiums, and the ratio of unearned premiums to written premiums would be considerably higher.

Assuming an accurate calculation of the unearned premium reserve by both carriers, could anyone properly place the slightest value on the ratios of unearned premium reserve to written premiums as measuring the adequacy of the unearned premium reserves of the two carriers?

The insurance in force of a carrier must be separately established for:

1. Unexpired risks "running one year or less from date of policy," and
2. Unexpired risks "running more than one year from date of policy."

A choice of two methods of calculating the unearned premium reserve is available for premiums in force of the first class; the management of the carrier may select either the "Pro-Rata" or the "50%" method.* But with regard to premiums in force of the second class, the pro-rata method is prescribed.

Here is another factor which may vitiate a comparison of ratios of unearned premium reserve to written premiums for two carriers. If one carrier writes business exclusively on an annual basis and uses the 50% method, and if there is some margin of difference between its insurance in force and its written premiums, the ratio of the unearned premium reserve to written premiums may be 40%. If another carrier writes business exclusively on a three-year basis, it must establish its unearned premium reserve on the pro-rata method and the ratio of its reserve to current written premiums may be 90% or more.

Again assuming accuracy in the calculation of reserves, would it be reasonable to conclude from a comparison of these ratios

* The unearned premium reserve on the 50% method is obtained by taking 50% of the aggregate insurance in force on the date of calculation. This is sometimes referred to as the "half-yearly method" since it is based on the theory that policies are issued more or less uniformly throughout the year and it may be assumed, therefore, that the average date of issue is the middle of the year. The pro-rata method involves a closer approximation to the theoretically correct reserve because it takes the insurance in force by calendar months of issue and assumes that the average effective date for each month is the middle of the month. The computation of the reserve on this basis is a more laborious process because it involves an analysis of insurance in force by months of issue and the calculation of unearned premiums for each separate month.

that the unearned premium reserve of the first carrier is woefully inadequate or that the second carrier is secreting a large share of its underwriting profits in its reserve?

Finally, there is an additional factor which is inherent in the establishment of the insurance in force. To explain it, we must first examine the formula used for this purpose.

Insurance in Force December 31, 1938
equals
Insurance in Force December 31, 1937, without deducting Reinsurance
plus
Premiums on policies written or renewed during 1938
minus
Premiums on expiring policies and cancelled policies during 1938
minus
Reinsurance premiums (Schedule F) at December 31, 1938

Note that the insurance in force is carried over from the preceding year and that premiums are added for policies which are written or renewed and premiums are subtracted for policies which are expiring. Assuming a normal status where the premium volume has reached a uniform level: the premiums on expiring policies tend to offset the premiums on new and renewed policies. One hundred thousand dollars of business goes off the books in a given month and $110,000 of business, let us say, goes on the books: the net result is an increase of $10,000 in the insurance in force.

This procedure may be badly upset, however, if the terms of insurance policies are changed for any reason such, for example, as the requirement imposed upon carriers writing automobile insurance under the compulsory automobile insurance law of Massachusetts. In that state the date of insurance coverage must be synchronized with the date on which the insured vehicle is licensed and since all licenses are issued annually to expire December 31, all insurance policies must also expire on the latter date.

How does this affect the insurance in force? A carrier writes $1,000,000 of compulsory automobile insurance premiums in Massachusetts: its policies must expire uniformly on December 31. The carrier is not required to maintain any unearned premium reserve against this business on December 31 (since on that date none of it is in force); but it is required to carry a reserve at other dates during the year which, on either method of computation, is very substantial at the beginning of the year and is reduced to zero at December 31. For in this case, since all the coverage issued in the preceding year expired on or before December 31, as the business is renewed and as new business is written during the current year, there is no offsetting amount of expiring business going off the books.

As the compulsory automobile business goes on the books, beginning with January 1, the insurance in force climbs rapidly and the result is that even if the total volume should be nearly constant from year to year (and the written premiums, therefore, stable), the unearned premium reserve increases sharply until some date near the middle of the year.

Thus, one carrier with a large volume of Massachusetts compulsory automobile business on its books may show a large increase in its unearned premium reserve at June 30, when semi-annual underwriting results are published, in spite of a generally declining or a stationary volume of written premiums. Another carrier with substantially the same volume and distribution of business by lines but with all its automobile business in other states shows no increase, or possibly a decrease, in unearned premium reserve. Since the change in unearned premium reserve vitally affects the carrier's earned premiums and is thus reflected in the published underwriting results at June 30, these two carriers, on the basis of their June 30 statements, appear to be enjoying widely different underwriting results when, in fact, the actual experience of the two carriers may be fairly similar. This difference will vanish by December 31—and the clever analyst will not be misled by the abnormal showing of one carrier at June 30.

RULE VI.

The unearned premium reserve of any reputable carrier may be accepted, without question, as being adequate. Any attempt to judge the adequacy of the reserve by comparing it with written premiums can prove absolutely nothing. Comparisons of ratios of unearned premium reserve to written premiums as between carriers may well be avoided as a waste of time.

VIII.

Casualty actuaries cannot escape responsibility for the widespread use of statistics in our business. Prior to their advent, an occasional crop of annual statements provided the statistically-minded persons of those early days with their only opportunity for mathematical exercise. Actuaries changed all this by insisting that the fundamental principles of our business must rest upon a statistical foundation. In this new order of things, all participants must become reasonably proficient in the simpler forms of statistical analysis. They require guidance and it is only proper that the members of this Society should share the burden of educating them.

The future will bring bigger and better compilations of statistics; the need for enlightenment in their proper uses was never more urgent than it is today.

TABLES ADAPTED FOR MACHINE COMPUTATION

BY

FRANCIS S. PERRYMAN

In actuarial and particularly in casualty actuarial work the occasion often arises when it is necessary to make a more or less isolated calculation for which full tables are not available covering the particular function involved. For example, we may have to determine the present value of $12.00 a week for 200 weeks at 3½% per annum compound interest, and it may be necessary to do this with considerable accuracy; for instance, in order to comply with some statutory or other legal requirement. If we do not have available a table of the present values of such weekly annuities certain, we have to make the calculation from first principles or from the appropriate formula.

Thus in the example cited if we assume there are 52 weeks to the year the required value is

$$12 \times 52\, a_{\overline{n}|}^{(52)} \text{ or } 624 \frac{1 - v^n}{j_{(52)}} \text{ at } 3\tfrac{1}{2}\%$$

$$\text{where } n = \frac{200}{52},\ v = (1+i)^{-1} \text{ and } j_{(52)} = 52\,\{ (1+i)^{\frac{1}{52}} - 1 \}$$

To calculate v^n logarithms must be resorted to (unless a troublesome series development is used) and tables of these to more than 7 places are not very usual in offices and even if available are unhandy to use, involving considerable interpolations. Seven place tables do not always give sufficient accuracy. Then as regards $j_{(52)}$ probably no tables are available and again we have to fall back on logarithms (or else sum a series) and for any moderate accuracy extended logarithm tables must be used.

On the other hand, let us remember that efficient calculating machines are in everyday use in modern offices. In making calculations of the type considered above, not much assistance can be had from a calculating machine that nevertheless can add, subtract, multiply and divide almost instantaneously. Why is this? The answer is of course that the usual logarithm tables are not adapted to the special requirements and limitations of the calculating machines and basic tables so arranged as to be usable on the machines are not at hand. As I will show it is easily possible to compile suitable tables with the aid of which logarithmic computations can be made rapidly. I have had such tables prepared and the purpose of this paper is to publish them with necessary instructions for their use.

I will assume there is available a calculating machine that will multiply a 10 figure number by a 10 figure number giving the result to 20 significant figures (though 10 will be sufficient for our purposes): the machine will also divide a number of 20 figures (10 will be sufficient) by another 10 figure number giving the quotient to 10 places. The tables given are for this capacity but of course can be used with a machine of 8 × 8 capacity in which case the final result will naturally be accurate to a less number of significant figures. Let us consider in detail a calculation requiring the use of logarithms, say for example

$$12.3456789^{9.87654321}.$$

This involves three steps

(i) the determination of the logarithm of 12.3456789
(ii) its multiplication by 9.87654321
(iii) the determination of the antilogarithm of the product

The second step is easily done on the machine. As for the other steps it would require impractically large tables to give logarithms and antilogarithms to 9 or 10 places by mere inspection or even with the aid of simple interpolations. However by factorizing the number whose logarithm is required we can reduce the size of the necessary tables to a manageable size and the factorizing can be effected quickly with the aid of the machine. Similarly for antilogarithms we get the answer in the form of factors which are easily multiplied together on the machine.

What I have done is to provide tables of logarithms to 10 places of

(a) a series of numbers (each of 3 figures) from 1.00 to 10.00 such that the ratio of any number to its predecessor is not greater than 1.02235 (150 numbers in this series) (see Table III)

(b) numbers from 1.00000 to 1.02235 by intervals of .00015 (150 numbers) (see Table IV)

(c) numbers from 1.000000 to 1.000149 by intervals of .000001 (150 numbers) (see Table V)

plus (d) a simple rule involving one multiplication to find the logarithm to 10 places of any number between 1.000000 and 1.000001 (see Table VI).

Any number is readily reduced by the machine to four factors whose logarithms are given by the three tables and the rule respectively. The addition of the four logarithms of the factors give the logarithm of the number. (As in the case of ordinary logarithm tables, what is given by my tables is the mantissa of the logarithm; the characteristic is as usual to be supplied by inspection—the readers of this paper are familiar with this procedure and it is not necessary for me to elaborate on it.) Thus to take (at last!) our example, to find the logarithm of 1.23456789 we divide this by 1.22, the largest number in series (a) which is not greater than 1.23456789; the quotient is 1.01194. . . . This is as far as we need proceed on the first division for we can see the largest number in series (b) which is not greater than this quotient is 1.01185. Now 1.22 × 1.01185 equals 1.2344570 and dividing this into 1.23456789 we get 1.000089829 (to 10 significant figures) which can be resolved at sight into 1.000089 × 1.000000829. So 1.23456789 = 1.22 × 1.01185 × 1.000089 × 1.000000829 (to 10 significant figures).

The tables give directly the logarithms of the first three factors: as to the fourth, its logarithm is .000000829 × .434294 or .0000003600 (to 10 places).

log 1.22	.0863598307
log 1.01185	.0051161360
log 1.000089	.0000386505
log 1.000000829	.0000003600
log 1.23456789	.0915149772

So log 12.3456789 = 1.0915149772.

This is the first step and it takes much longer to describe than to do—with the tables in front of the operator the first two factors are picked out in a few seconds and the last two in a few more. The addition of the logarithm takes but a few more: very little need be written down.

Now multiplying the logarithm just found by 9.87654321 we get 10.7803948367. We must now find the antilogarithm of this; the process is just the reverse of finding a logarithm. We see that 6.00 is the number in series (a) whose logarithm is the nearest below .7803948367; and subtracting therefore the logarithm of 6.00 from this we get .0022435863 from which we subtract the largest possible logarithm out of series (b), namely that of 1.00510, and the remainder is .0000343133: from this we subtract the largest possible logarithm out of series (c), namely that of 1.000079, and the remainder is .0000000054. The antilogarithm of this is 1 plus .0000000054 × 2.30259 or 1.000000012 (to 10 significant figures). So the required antilogarithm of .7803948367 is 6.00 × 1.00510 × 1.000079 × 1.000000012. By inspection the product of the last two factors is 1.000079012 and by multiplication the product of the first two is 6.0306 and therefore the antilogarithm is

$$6.0306 \times 1.000079012 \text{ or } 6.031076490.$$

Therefore the antilogarithm of 10.7803948367 is 60,310,764,900. This result is, of course, not reliable to the last significant figure. In fact, using more extended logarithm tables, I find that log 1.23456789 = .9815149771700 . . . and the final answer is 60,310,764,882.44 . . . so that the result from our tables is wrong by two units in the tenth significant place.

The above is an illustration of Tables III to VI described below. These tables form a compact logarithm table and can be used for any purpose for which such a table is required. As for Tables I and II, these are special compound interest tables. Table I gives the logarithm of $1 + i$ to 12 decimal places for 64 rates of interest from ⅛% to 10%. This table enables us to avoid the calculation of $\log (1 + i)$ for each problem and also gives enough decimal places so that the logarithm of $(1 + i)^n$ may be calculated accurately to 10 places when n is large say 50 or 100. Table II is a table of values of $j_{(r)}$ for rates of interest from ¼% to 7½%. This is necessary for calculating the values of annuities certain payable semi-annually, quarterly, monthly, weekly or continuously; and besides saving the calculation of the value of $j_{(r)}$ from the other tables gives it more accurately. Instructions for the use of these tables are given next, followed by the tables themselves, after which are various illustrations covering some of the purposes to which the table can be put.

I trust that these tables will be of service to the actuarial profession. Tables I, III and IV were derived from existing tables (chiefly the 20 place Logarithmetica Britannica) with precautions to ensure accuracy. Table V was calculated specially as was also

Table II. The idea of obtaining logarithms by factorizing is of course not new: it is as old as logarithms themselves. Last century Peter Gray published tables to 24 places based on this method. It is interesting to note that A. J. Thompson in the introduction to his 20 place Logarithmetica Britannica first gave the "classical" method of obtaining logarithms and antilogarithms by central difference interpolation but later added auxiliary tables based on the factorization method with the comment that, as contrasted with interpolation methods, factorization methods "are at least as short for finding logarithms, and distinctly shorter for finding antilogarithms." This is my experience also.

I should state here, for completeness, that no life contingencies are involved in any of the tables or examples of this paper and that all annuities mentioned are annuities certain: also that all logarithms dealt with are "common" logarithms, that is to base 10.

Description of Tables and Instructions for Use

Table I

Logarithms of $(1+i)$ for rates of interest from $\frac{1}{8}\%$ to 6% by intervals of $\frac{1}{8}\%$ and from 6% to 10% by intervals of $\frac{1}{4}\%$.

These logarithms are given to 12 decimal places.

No particular comments required here except

(i) if, as in problems involving present values, $v^n = (1+i)^{-n}$ is required, say for example $(1.05)^{-20}$, we can either (a) write

$$\log v = -\log (1+i) = -\log 1.05 = -.021189299070$$
$$= -1 + .978810700930 = \bar{1}.978810700930$$

and then multiply by 20, thus

$$-20 + 19.576214018600 = \bar{1}.576214018600$$

or (b) multiply $\log (1+i) = .021189299070$ by 20 getting

$$\log (1+i)^n = \log 1.05^{20} = 0.423785981400$$

and then $\log v^n = -0.423785981400 = \bar{1}.576214018600$.

(ii) for values of i not in the table, e.g., $3\frac{5}{16}\%$, we can either (a) calculate $\log 1.03\frac{5}{16} = \log 1.033125$ from Tables III, IV, V and VI, or (b) interpolate in Table I as indicated in Appendix I—the latter method will usually be quicker and always be accurate to more decimal places.

Table II

Values of $j_{(r)}$ for rates of interest proceeding from ¼% to 7½% by intervals of ¼%, for values of r = 2, 4, 12, 52, 52.1775 and ∞. These values are given to 12 decimal places so that at least 10 significant figures are available.

$j_{(r)} = r\{(1+i)^{\frac{1}{r}} - 1\}$ is the nominal rate of interest convertible r times a year equivalent to the effective rate of interest i. The amount and present value of an annuity of 1 per annum for n years payable annually and r times a year are

	Payable annually	Payable r times a year
amount	$s_{\overline{n}\|} = \dfrac{(1+i)^n - 1}{i}$	$s_{\overline{n}\|}^{(r)} = \dfrac{(1+i)^n - 1}{j_{(r)}}$
present value	$a_{\overline{n}\|} = \dfrac{1 - v^n}{i}$	$a_{\overline{n}\|}^{(r)} = \dfrac{1 - v^n}{j_{(r)}}$

$j_{(2)}$, $j_{(4)}$, $j_{(12)}$ are to be used for annuities payable semi-annually, quarterly, and monthly respectively: $j_{(52)}$ is to be used for annuities payable 52 times a year, that is weekly if a year is regarded as consisting of 52 weeks: $j_{(52.1775)}$ is to be used for weekly annuities if it is assumed that a year contains 52.1775 weeks on the average:* $j_{(\infty)} = \delta$ is to be used for annuities payable continuously. The procedure to be used if $j_{(r)}$ is required for a rate of interest or a value of r will not be given in the Table will be found in Appendix I.

Note that this Table can be used in conjunction with ordinary annuity tables: if for instance $a_{\overline{35}|}^{(4)}$ is required, this is equal to $a_{\overline{35}|}$ (the value of which can be taken from any table of annuities certain) multiplied by $\dfrac{i}{j_{(4)}}$ (where $j_{(4)}$ is taken from Table II).

* The value 52.1775 is arrived at as follows — a year contains 52 weeks plus one day in ordinary years and plus two days in leap years. In a period of 400 years there are 97 leap years (one every four years except in even century years like 1900 where the 19 is *not* divisible by four). Thus in 400 years there are 497 extra days (over the 52 weeks per year). Now 497 is conveniently divisible by 7 so there are 71 extra weeks in 400 years. So the average number of weeks in a year is $52\frac{71}{400}$ or 52.1775. It is convenient to use this figure with a terminating decimal rather than, say, the average number of weeks obtained from considering a year as consisting of 52 weeks plus 1¼ days on the average, for this gives as the average number of weeks $52\frac{5}{28}$ or $52.17\dot{8}5714\dot{2}$, a recurring decimal.

Tables III, IV, V and VI

These together form a condensed logarithm table—and their use will be clear from the following examples.

(a) To find the logarithm of 105. We first find the log of 1.05, that is the number with the same significant figures but with the decimal point between the first two significant figures. Out of Table III pick the number nearest to but not exceeding 1.05—this is 1.04. Dividing this on the machine into 1.05 we get a quotient which is always between 1.00000 and 1.02235: we carry the division only far enough to determine the number in Table IV that is the nearest below the quotient. In our case $\frac{1.05}{1.04} = 1.009615\ldots$ and the nearest number below this in Table IV is 1.00960. Now multiplying on the machine 1.04 by 1.00960 we get 1.0499840 which divided into our number 1.05 gives 1.000015238 which quotient will always be between 1.000000 and 1.000150. Now taking from Table V the number nearest below this, that is 1.000015, we factorize by inspection 1.000015238 into 1.000015 × 1.000000238. Thus 1.05 = 1.04 × 1.00960 × 1.000015 × 1.000000238 (to 10 significant figures) and the logarithms of the first three factors we take from Tables III, IV and V respectively. Table VI, which is not strictly a Table but an instruction, tells us that the log of 1.000000238 is .000000238 × .434294 to 10 places or .0000001034, performing the multiplication on the machine. Now adding the logs of the four factors we get

log 1.04	.0170333393
log 1.00960	.0041493419
log 1.000015	.0000065144
log 1.000000338	.0000001034
log 1.05	.0211892990

(compare this with Table I which gives
log 1.05 = .021189299070)

and therefore log 105 = 2.0211892990.

(b) To find the antilogarithm of $\bar{2}.6$. We first find the antilogarithm of .6, by reversing the process of finding logarithms. From Table III we pick out the logarithm next less than .6—this is .5932860670, the logarithm of 3.92. We subtract this from .6 obtaining .0067139330 (which will always be between .00000 and .00960). From Table IV we pick out the logarithm next less than this remainder, this will be .0066585439 the logarithm of 1.01545; subtract this and obtain .0000553891 (which will always be less than .00006514). From Table V we pick out the logarithm next less than this remainder; this will be .0000551519, the logarithm of 1.000127. Subtract this. The balance, namely .0000002372, we divide by .434294 or multiply by 2.30259, as per Table VI, performing the operation on the machine, and the result (to 9 decimal places) added to 1 is the antilogarithm of the balance, in our case antilogarithm .0000002372 = 1.000000546 (to ten significant figures). Thus antilogarithm .6 = 3.92 × 1.01545 × 1.000127 × 1.000000546. We multiply the last two factors together by inspection, thus 1.000127546, and the first two on the machine, getting 3.980564; then 3.980564 × 1.000127546 = 3.981071705 = antilogarithm .6. So antilogarithm $\bar{2}.6$ = .03981071705 (the correct result is .0398107170553...).

TABLE I

Logarithms of $(1 + i)$ to 12 decimal places for values of i proceeding from ⅛% by ⅛% to 6% and by ¼% to 10%

%	i	log $(1 + i)$	%	i	log $(1 + i)$
⅛	.00125	.00054 25290 92	4⅛	.04125	.01755 50144 15−
¼	.00250	.00108 43812 92	4¼	.04250	.01807 60636 46
⅜	.00375	.00162 55582 87	4⅜	.04375	.01859 64884 92
½	.00500	.00216 60617 57	4½	.04500	.01911 62904 47
⅝	.00625	.00270 58933 76	4⅝	.04625	.01963 54710 01
¾	.00750	.00324 50548 13	4¾	.04750	.02015 40316 38
⅞	.00875	.00378 35477 30	4⅞	.04875	.02067 19738 37
1	.01000	.00432 13737 83	5	.05000	.02118 92990 70
1⅛	.01125	.00485 85346 20	5⅛	.05125	.02170 60088 06
1¼	.01250	.00539 50318 87	5¼	.05250	.02222 21045 08
1⅜	.01375	.00593 08672 19	5⅜	.05375	.02273 75876 33
1½	.01500	.00646 60422 49	5½	.05500	.02325 24596 34
1⅝	.01625	.00700 05586 02	5⅝	.05625	.02376 67219 58
1¾	.01750	.00753 44178 97	5¾	.05750	.02428 03760 47
1⅞	.01875	.00806 76217 48	5⅞	.05875	.02479 34233 39
2	.02000	.00860 01717 62	6	.06000	.02530 58652 65−
2⅛	.02125	.00913 20695 40	6¼	.06250	.02632 89387 22
2¼	.02250	.00966 33166 79	6½	.06500	.02734 96077 75−
2⅜	.02375	.01019 39147 68	6¾	.06750	.02836 78836 97
2½	.02500	.01072 38653 92	7	.07000	.02938 37776 85+
2⅝	.02625	.01125 31701 27	7¼	.07250	.03039 73008 57
2¾	.02750	.01178 18305 48	7½	.07500	.03140 84642 52
2⅞	.02875	.01230 98482 20	7¾	.07750	.03241 72788 33
3	.03000	.01283 72247 05+	8	.08000	.03342 37554 87
3⅛	.03125	.01336 39615 58	8¼	.08250	.03442 79050 25+
3¼	.03250	.01389 00603 28	8½	.08500	.03542 97381 85−
3⅜	.03375	.01441 55225 61	8¾	.08750	.03642 92656 27
3½	.03500	.01494 03497 93	9	.09000	.03742 64979 41
3⅝	.03625	.01546 45435 58	9¼	.09250	.03842 14456 42
3¾	.03750	.01598 81053 84	9½	.09500	.03941 41191 76
3⅞	.03875	.01651 10367 92	9¾	.09750	.04040 45289 14
4	.04000	.01703 33392 99	10	.10000	.04139 26851 58

TABLE II

Nominal rates of interest $j_{(r)}$ convertible r times a year equivalent to effective rate i

For i up to 7½% and r = 2, 4, 12, 52, 52.1775 and ∞.

%	i	$j_{(2)}$	$j_{(4)}$	$j_{(12)}$
¼	.0025	.00249 84394 50+	.00249 76596 62	.00249 71399 84
½	.0050	.00499 37655 76	.00499 06522 50+	.00498 85781 37
¾	.0075	.00748 59899 88	.00747 89980 62	.00747 43416 14
1	.0100	.00997 51242 24	.00996 27172 57	.00995 44573 72
1¼	.0125	.01246 11797 50−	.01244 18298 59	.01242 89521 76
1½	.0150	.01494 41679 61	.01491 63557 52	.01489 78525 97
1¾	.0175	.01742 41001 83	.01738 63146 91	.01736 11850 16
2	.0200	.01990 09876 72	.01985 17262 93	.01981 89756 23
2¼	.0225	.02237 48416 16	.02231 26100 45−	.02227 12504 24
2½	.0250	.02484 56731 32	.02476 89853 03	.02471 80352 38
2¾	.0275	.02731 34932 71	.02722 08712 92	.02715 93557 01
3	.0300	.02977 83130 18	.02966 82871 11	.02959 52372 68
3¼	.0325	.03224 01432 90	.03211 12517 29	.03202 57052 12
3½	.0350	.03469 89949 38	.03454 97839 91	.03445 07846 29
3¾	.0375	.03715 48787 46	.03698 39026 15−	.03687 05004 39
4	.0400	.03960 78054 37	.03941 36261 96	.03928 48773 86
4¼	.0425	.04205 77856 66	.04183 89732 06	.04169 39400 42
4½	.0450	.04450 48300 26	.04425 99619 97	.04409 77128 05+
4¾	.0475	.04694 89490 46	.04667 66107 96	.04649 62199 06
5	.0500	.04939 01531 92	.04908 89377 16	.04888 94854 04
5¼	.0525	.05182 84528 68	.05149 69607 48	.05127 75331 94
5½	.0550	.05426 38584 17	.05390 06977 65−	.05366 03870 05−
5¾	.0575	.05669 63801 20	.05630 01665 26	.05603 80704 00
6	.0600	.05912 60281 97	.05869 53846 75−	.05841 06067 84
6¼	.0625	.06155 28128 09	.06108 63697 38	.06077 80193 97
6½	.0650	.06397 67440 55+	.06347 31391 31	.06314 03313 22
6¾	.0675	.06639 78319 77	.06585 57101 57	.06549 75654 83
7	.0700	.06881 60865 58	.06823 41000 07	.06784 97446 49
7¼	.0725	.07123 15177 21	.07060 83257 62	.07019 68914 32
7½	.0750	.07364 41353 33	.07297 84043 94	.07253 90282 92

TABLE II (Continued)

Nominal rates of interest $j_{(r)}$ convertible r times a year equivalent to effective rate i

For i up to 7½% and r = 2, 4, 12, 52, 52.1775 and ∞.

%	i	$j_{(52)}$	$j_{(52.1775)}$	$j_{(\infty)} = \delta$
¼	.0025	.00249 69401 46	.00249 69399 42	.00249 68801 99
½	.0050	.00498 77807 07	.00498 77798 93	.00498 75415 11
¾	.0075	.00747 25517 01	.00747 25498 75—	.00747 20148 39
1	.0100	.00995 12829 24	.00995 12796 85+	.00995 03308 53
1¼	.0125	.01242 40039 53	.01242 39989 05—	.01242 25199 99
1½	.0150	.01489 07441 47	.01489 07368 95—	.01488 86124 94
1¾	.0175	.01735 15326 49	.01735 15228 02	.01734 86383 35—
2	.0200	.01980 63983 91	.01980 63855 60	.01980 26272 96
2¼	.0225	.02225 53700 91	.02225 53538 92	.02225 06089 35—
2½	.0250	.02469 84762 60	.02469 84563 10	.02469 26125 90
2¾	.0275	.02713 57452 02	.02713 57211 20	.02712 86673 88
3	.0300	.02956 72050 14	.02956 71764 24	.02955 88022 42
3¼	.0325	.03199 28835 93	.03199 28501 20	.03198 30458 53
3½	.0350	.03441 28086 33	.03441 27699 04	.03440 14267 17
3¾	.0375	.03682 70076 28	.03682 69632 76	.03681 39731 23
4	.0400	.03923 55078 76	.03923 54575 34	.03922 07131 53
4¼	.0425	.04163 83364 80	.04163 82797 84	.04162 16746 91
4½	.0450	.04403 55203 49	.04403 54569 38	.04401 68854 17
4¾	.0475	.04642 70862 01	.04642 70157 16	.04640 63728 14
5	.0500	.04881 30605 62	.04881 29826 47	.04879 01641 69
5¼	.0525	.05119 34697 72	.05119 33840 74	.05116 82865 74
5½	.0550	.05356 83399 84	.05356 82461 53	.05354 07669 28
5¾	.0575	.05593 76971 67	.05593 75948 53	.05590 76319 38
6	.0600	.05830 15671 07	.05830 14559 64	.05826 89081 24
6¼	.0625	.06065 99754 08	.06065 98550 94	.06062 46218 16
6½	.0650	.06301 29474 96	.06301 28176 68	.06297 47991 61
6¾	.0675	.06536 35086 18	.06536 03689 39	.06531 94661 21
7	.0700	.06770 26838 46	.06770 25339 80	.06765 86484 74
7¼	.0725	.07003 94980 78	.07003 93376 90	.06999 23718 20
7½	.0750	.07237 09760 38	.07237 08047 97	.07232 06615 80

TABLE III

Logarithms of Numbers from 1.00 to 10.00

N	log N	N	log N
1.00	.00000 00000	1.80	.25527 25051
1.02	.00860 01718	1.83	.26245 10897
1.04	.01703 33393	1.86	.26951 29442
1.06	.02530 58653	1.89	.27646 18042
1.08	.03342 37555—	1.92	.28330 12287
1.10	.04139 26852	1.95	.29003 46114
1.12	.04921 80227	1.98	.29666 51903
1.14	.05690 48513	2.01	.30319 60574
1.16	.06445 79892	2.04	.30963 01674
1.18	.07188 20073	2.07	.31597 03455—
1.20	.07918 12460	2.10	.32221 92947
1.22	.08635 98307	2.13	.32837 96034
1.24	.09342 16852	2.16	.33445 37512
1.26	.10037 05451	2.19	.34044 41148
1.28	.10720 99696	2.22	.34635 29745—
1.30	.11394 33523	2.25	.35218 25181
1.32	.12057 39312	2.30	.36172 78360
1.34	.12710 47984	2.35	.37106 78623
1.36	.13353 89084	2.40	.38021 12417
1.38	.13987 90864	2.45	.38916 60844
1.40	.14612 80357	2.50	.39794 00087
1.42	.15228 83444	2.55	.40654 01804
1.44	.15836 24921	2.60	.41497 33480
1.47	.16731 73347	2.65	.42324 58739
1.50	.17609 12591	2.70	.43136 37642
1.53	.18469 14308	2.75	.43933 26938
1.56	.19312 45984	2.80	.44715 80313
1.59	.20139 71243	2.85	.45484 48600
1.62	.20951 50145+	2.90	.46239 79979
1.65	.21748 39442	2.95	.46982 20160
1.68	.22530 92817	3.00	.47712 12547
1.71	.23299 61103	3.05	.48429 98393
1.74	.24054 92483	3.10	.49136 16938
1.77	.24797 32664	3.15	.49831 05538

TABLE III (Continued)

Logarithms of Numbers from 1.00 to 10.00

N	log N	N	log N
3.20	.50514 99783	5.68	.75434 83357
3.25	.51188 33610	5.76	.76042 24834
3.30	.51851 39399	5.88	.76937 73261
3.35	.52504 48070	6.00	.77815 12504
3.40	.53147 89170	6.12	.78675 14221
3.45	.53781 90951	6.24	.79518 45897
3.50	.54406 80444	6.36	.80345 71156
3.55	.55022 83531	6.48	.81157 50059
3.60	.55630 25008	6.60	.81954 39355+
3.68	.56584 78187	6.72	.82736 92731
3.76	.57518 78449	6.84	.83505 61017
3.84	.58433 12244	6.96	.84260 92396
3.92	.59328 60670	7.08	.85003 32577
4.00	.60205 99913	7.20	.85733 24964
4.08	.61066 01631	7.32	.86451 10811
4.16	.61909 33306	7.44	.87157 29355+
4.24	.62736 58566	7.56	.87852 17955+
4.32	.63548 37468	7.68	.88536 12200
4.40	.64345 26765—	7.80	.89209 46027
4.48	.65127 80140	7.92	.89872 51816
4.56	.65896 48427	8.04	.90525 60487
4.64	.66651 79806	8.16	.91169 01588
4.72	.67394 19986	8.28	.91803 03368
4.80	.68124 12374	8.40	.92427 92861
4.88	.68841 98220	8.52	.93043 95948
4.96	.69548 16765—	8.64	.93651 37425—
5.04	.70243 05364	8.76	.94250 41062
5.12	.70926 99610	8.88	.94841 29658
5.20	.71600 33436	9.00	.95424 25094
5.28	.72263 39225+	9.20	.96378 78273
5.36	.72916 47897	9.40	.97312 78536
5.44	.73559 88997	9.60	.98227 12330
5.52	.74193 90777	9.80	.99122 60757
5.60	.74818 80270	10.00	1.00000 00000

TABLE IV

Logarithms of Numbers from 1.00000 to 1.02235

N	log N	N	log N
1.00000	.00000 00000	1.00570	.00246 84501
1.00015	.00006 51393	1.00585	.00253 32203
1.00030	.00013 02688	1.00600	.00259 79807
1.00045	.00019 53886	1.00615	.00266 27315+
1.00060	.00026 04985+	1.00630	.00272 74727
1.00075	.00032 55988	1.00645	.00279 22042
1.00090	.00039 06892	1.00660	.00285 69261
1.00105	.00045 57700	1.00675	.00292 16383
1.00120	.00052 08409	1.00690	.00298 63409
1.00135	.00058 59022	1.00705	.00305 10338
1.00150	.00065 09536	1.00720	.00311 57171
1.00165	.00071 59954	1.00735	.00318 03908
1.00180	.00078 10274	1.00750	.00324 50548
1.00195	.00084 60496	1.00765	.00330 97092
1.00210	.00091 10621	1.00780	.00337 43540
1.00225	.00097 60649	1.00795	.00343 89892
1.00240	.00104 10580	1.00810	.00350 36147
1.00255	.00110 60413	1.00825	.00356 82307
1.00270	.00117 10149	1.00840	.00363 28370
1.00285	.00123 59788	1.00855	.00369 74337
1.00300	.00130 09330	1.00870	.00376 20208
1.00315	.00136 58775−	1.00885	.00382 65983
1.00330	.00143 08122	1.00900	.00389 11662
1.00345	.00149 57373	1.00915	.00395 57245+
1.00360	.00156 06526	1.00930	.00402 02733
1.00375	.00162 55583	1.00945	.00408 48124
1.00390	.00169 04542	1.00960	.00414 93419
1.00405	.00175 53405−	1.00975	.00421 38618
1.00420	.00182 02170	1.00990	.00427 83722
1.00435	.00188 50839	1.01005	.00434 28730
1.00450	.00194 99411	1.01020	.00440 73642
1.00465	.00201 47886	1.01035	.00447 18458
1.00480	.00207 96264	1.01050	.00453 63179
1.00495	.00214 44545+	1.01065	.00460 07803
1.00510	.00220 92730	1.01080	.00466 52332
1.00525	.00227 40818	1.01095	.00472 96766
1.00540	.00233 88809	1.01110	.00479 41104
1.00555	.00240 36703	1.01125	.00485 85346

TABLE IV (Continued)

Logarithms of Numbers from 1.00000 to 1.02235

N	log N	N	log N
1.01140	.00492 29493	1.01695	.00729 96007
1.01155	.00498 73544	1.01710	.00736 36543
1.01170	.00505 17500−	1.01725	.00742 76985+
1.01185	.00511 61360	1.01740	.00749 17333
1.01200	.00518 05125+	1.01755	.00755 57586
1.01215	.00524 48794	1.01770	.00761 97745+
1.01230	.00530 92368	1.01785	.00768 37810
1.01245	.00537 35847	1.01800	.00774 77780
1.01260	.00543 79231	1.01815	.00781 17656
1.01275	.00550 22519	1.01830	.00787 57438
1.01290	.00556 65711	1.01845	.00793 97125+
1.01305	.00563 08809	1.01860	.00800 36718
1.01320	.00569 51811	1.01875	.00806 76217
1.01335	.00575 94718	1.01890	.00813 15622
1.01350	.00582 37530	1.01905	.00819 54933
1.01365	.00588 80247	1.01920	.00825 94150−
1.01380	.00595 22869	1.01935	.00832 33273
1.01395	.00601 65396	1.01950	.00838 72301
1.01410	.00608 07827	1.01965	.00845 11236
1.01425	.00614 50164	1.01980	.00851 50076
1.01440	.00620 92405+	1.01995	.00857 88823
1.01455	.00627 34552	1.02010	.00864 27476
1.01470	.00633 76604	1.02025	.00870 66034
1.01485	.00640 18561	1.02040	.00877 04499
1.01500	.00646 60422	1.02055	.00883 42870
1.01515	.00653 02190	1.02070	.00889 81148
1.01530	.00659 43862	1.02085	.00896 19331
1.01545	.00665 85439	1.02100	.00902 57421
1.01560	.00672 26922	1.02115	.00908 95417
1.01575	.00678 68310	1.02130	.00915 33319
1.01590	.00685 09603	1.02145	.00921 71128
1.01605	.00691 50802	1.02160	.00928 08843
1.01620	.00697 91906	1.02175	.00934 46464
1.01635	.00704 32915+	1.02190	.00940 83992
1.01650	.00710 73830	1.02205	.00947 21426
1.01665	.00717 14650−	1.02220	.00953 58766
1.01680	.00723 55375+	1.02235	.00959 96013

TABLE V

Logarithms of Numbers from 1.000000 to 1.000149

N	log N	N	log N
1.000000	.00000 00000	1.000038	.00001 65029
1.000001	.00000 04343	1.000039	.00001 69372
1.000002	.00000 08686	1.000040	.00001 73714
1.000003	.00000 13029	1.000041	.00001 78057
1.000004	.00000 17372	1.000042	.00001 82400
1.000005	.00000 21715−	1.000043	.00001 86743
1.000006	.00000 26058	1.000044	.00001 91085+
1.000007	.00000 30401	1.000045	.00001 95428
1.000008	.00000 34743	1.000046	.00001 99771
1.000009	.00000 39086	1.000047	.00002 04114
1.000010	.00000 43429	1.000048	.00002 08456
1.000011	.00000 47772	1.000049	.00002 12799
1.000012	.00000 52115+	1.000050	.00002 17142
1.000013	.00000 56458	1.000051	.00002 21485−
1.000014	.00000 60801	1.000052	.00002 25827
1.000015	.00000 65144	1.000053	.00002 30170
1.000016	.00000 69487	1.000054	.00002 34513
1.000017	.00000 73829	1.000055	.00002 38855+
1.000018	.00000 78172	1.000056	.00002 43198
1.000019	.00000 82515+	1.000057	.00002 47541
1.000020	.00000 86858	1.000058	.00002 51883
1.000021	.00000 91201	1.000059	.00002 56226
1.000022	.00000 95544	1.000060	.00002 60569
1.000023	.00000 99887	1.000061	.00002 64912
1.000024	.00001 04229	1.000062	.00002 69254
1.000025	.00001 08572	1.000063	.00002 73597
1.000026	.00001 12915+	1.000064	.00002 77940
1.000027	.00001 17258	1.000065	.00002 82282
1.000028	.00001 21601	1.000066	.00002 86625−
1.000029	.00001 25944	1.000067	.00002 90968
1.000030	.00001 30286	1.000068	.00002 95310
1.000031	.00001 34629	1.000069	.00002 99653
1.000032	.00001 38972	1.000070	.00003 03995+
1.000033	.00001 43315−	1.000071	.00003 08338
1.000034	.00001 47658	1.000072	.00003 12681
1.000035	.00001 52000	1.000073	.00003 17023
1.000036	.00001 56343	1.000074	.00003 21366
1.000037	.00001 60686	1.000075	.00003 25709

TABLE V (Continued)

Logarithms of Numbers from 1.000000 to 1.000149

N	log N	N	log N
1.000076	.00003 30051	1.000113	.00004 90725+
1.000077	.00003 34394	1.000114	.00004 95067
1.000078	.00003 38736	1.000115	.00004 99410
1.000079	.00003 43079	1.000116	.00005 03752
1.000080	.00003 47422	1.000117	.00005 08095−
1.000081	.00003 51764	1.000118	.00005 12437
1.000082	.00003 56107	1.000119	.00005 16780
1.000083	.00003 60449	1.000120	.00005 21122
1.000084	.00003 64792	1.000121	.00005 25465−
1.000085	.00003 69135−	1.000122	.00005 29807
1.000086	.00003 73477	1.000123	.00005 34149
1.000087	.00003 77820	1.000124	.00005 38492
1.000088	.00003 82162	1.000125	.00005 42834
1.000089	.00003 86505−	1.000126	.00005 47177
1.000090	.00003 90847	1.000127	.00005 51519
1.000091	.00003 95190	1.000128	.00005 55861
1.000092	.00003 99533	1.000129	.00005 60204
1.000093	.00004 03875+	1.000130	.00005 64546
1.000094	.00004 08218	1.000131	.00005 68889
1.000095	.00004 12560	1.000132	.00005 73231
1.000096	.00004 16903	1.000133	.00005 77573
1.000097	.00004 21245+	1.000134	.00005 81916
1.000098	.00004 25588	1.000135	.00005 86258
1.000099	.00004 29930	1.000136	.00005 90600
1.000100	.00004 34273	1.000137	.00005 94943
1.000101	.00004 38615+	1.000138	.00005 99285+
1.000102	.00004 42958	1.000139	.00006 03627
1.000103	.00004 47300	1.000140	.00006 07970
1.000104	.00004 51643	1.000141	.00006 12312
1.000105	.00004 55985+	1.000142	.00006 16654
1.000106	.00004 60328	1.000143	.00006 20997
1.000107	.00004 64670	1.000144	.00006 25339
1.000108	.00004 69013	1.000145	.00006 29681
1.000109	.00004 73355+	1.000146	.00006 34024
1.000110	.00004 77698	1.000147	.00006 38366
1.000111	.00004 82040	1.000148	.00006 42708
1.000112	.00004 86383	1.000149	.00006 47051

Table VI

Logarithms of numbers from 1.000000 to 1.000001

To find the logarithm of a number between 1 and 1.000001 multiply the decimal portion by .434294 and the product is the logarithm to 10 decimal places.

$$\text{Example: } \log 1.000000421 = .000000421 \times .434294$$
$$= .0000001828.$$

To find the antilogarithm of a number between 0 and .0000004343 multiply the number by 2.30259 and the product, to 9 decimal places, added to 1 is the antilogarithm.

$$\text{Example: antilog } .0000001828 = 1 + .0000001828 \times 2.30259$$
$$= 1.000000421.$$

Examples of the Use of the Tables

(1) $\frac{355}{113}$ is an approximation to the value of π the true value of which is 3.141592654...

Find the error in using the approximation in π^{19}.

$\frac{355}{113} = 3.141592920 \ldots$ (call this p for short). We have to calculate $p^{19} - \pi^{19} = 3.141592920^{19} - 3.141592654^{19}$.

Factorizing according to the instructions for Tables III, IV, V and VI, we find

$$p = 3.141592920 = 3.10 \times 1.01335 \times 1.000066 \times 1.000000187$$
$$\pi = 3.141592654 = 3.10 \times 1.01335 \times 1.000066 \times 1.000000103$$

$$\begin{array}{lrr}
\text{So} & .4913616938 & .4913616938\\
 & .0057594718 & .0057594718\\
 & .0000286625 & .0000286625\\
 & .0000000812 & .0000000447\\ \cline{2-3}
 & \log p = .4971499093 & \log \pi = .4971498728\\
 & 19 \log p = 9.4458482767 & 19 \log \pi = 9.4458475832
\end{array}$$

from which, proceeding according to the instructions, we find

$$\text{antilog } .4458482767 = 2.75 \times 1.01500 \times 1.000114 \times 1.000000078 = 2.791568420$$

$$\text{antilog } .4458475832 = 2.75 \times 1.01500 \times 1.000112 \times 1.000000481 = 2.791563963$$

$$\begin{array}{lr}
\text{So} \quad p^{19} = & 2{,}791{,}568{,}420.\\
\pi^{19} = & 2{,}791{,}563{,}963.\\ \hline
\text{Difference} = & 4{,}457.
\end{array}$$

(The correct difference, taking π to more decimal places than given above and using fifteen place logarithms, is 4,503.80 . . .).

(2) Find the amount of 1625.14 accumulated at 3¾% per annum compound interest for 400 weeks, assuming 52.1775 weeks to the year.

400 weeks = 7.666139620 years (to 10 significant figures) so we have to calculate $1625.14 \times 1.0375^{7.666139620}$.

From Table I log 1.0375 = .015988105384 and multiplying by 7.666139630 we get, to 10 places, .1225670481, the antilogarithm of which we must find. Proceeding as per the instructions we get

$$\begin{array}{ll} & .1225670481 \\ \log 1.32 & \underline{.1205739312} \\ & .0019931169 \\ \log 1.00450 & \underline{.0019499411} \\ & .0000431758 \\ \log 1.000099 & \underline{.0000429930} \\ & .0000001828 = \log 1.000000421. \end{array}$$

Then the product of the last two factors is 1.000099421 and $1.32 \times 1.00450 = 1.32594$. Multiplying these two together we get 1.326071826 which, finally, has to be multiplied by 1625.14 giving 2155.0524.

(3) Find the present value of 1625.14, at 3¾% per annum compound interest, due 400 weeks hence, assuming 52.1775 weeks to the year.

400 weeks = 7.666139620 so we have to calculate

$$1625.14\, v^{7.666139620} \qquad v = 1.0375^{-1}.$$

As in example (2) we find

$$7.666139620 \times \log 1.0375 = .1225670481$$

and so we have to find the antilogarithm of

$$-.1225670481 = \bar{1}.8774329519.$$

Proceeding as usual we find

$$\begin{aligned} \text{antilog } .8774329519 &= 7.44 \times 1.01350 \times 1.000083 \times 1.000000503 \\ &= 7.54044 \times 1.000083503 \\ &= 7.541069649 \end{aligned}$$

Thus $\quad v^{7.666139620} = .7541069649$

which multiplied by 1625.14 gives the final answer of 1225.5294.

(4) Find the amount of an annuity certain of 12.83 a week accumulated at 3¾% per annum compound interest for 400 weeks (52.1775 weeks to the year).

The amount of an annuity certain of 1 per annum payable r times a year for n years is

$$s^{(r)}_{\overline{n|}} = \frac{(1+i)^n - 1}{j_{(r)}}.$$

In this example $n = 400/52.1775 = 7.666139620$

$r = 52.1775$ and $j_{(r)} = .036826963276$

(per Table II).

The value of $(1 + i)^n$, per example (2), is 1.326071826

$$\text{so} \quad s_{\overline{n}|}^{(r)} = \frac{.326071826}{.036826963276} = 8.8541606$$

which must be multiplied by the *annual* annuity payment, namely 12.83 × 52.1775 or 669.437325: so the final answer is 669.437325 × 8.8541600 = 5927.3052.

(5) Find the present value of an annuity certain of 12.83 a week, at 3¾% per annum compound interest, payable for 400 weeks (52.1775 weeks to the year).

The present value of an annuity certain of 1 per annum payable r times a year for n years is

$$a_{\overline{n}|}^{(r)} = \frac{1 - v^n}{j_{(r)}}.$$

In this example n = 400/52.1775 = 7.666139620
r = 52.1775 and $j_{(r)}$ = .036826963276 (per Table II).

The value of v^n, per example (3), is .7541069649

$$\text{so} \quad a_{\overline{n}|}^{(r)} = \frac{.2458930351}{.036826963276} = 6.6769837$$

which must be multiplied by the *annual* annuity payment, namely 12.83 × 52.1775 or 669.437325: so the final answer is 669.437325 × 6.6769838 = 4469.8221.

(5a) What would be the present value of the annuity given in example (5) if the year be assumed to consist of 52 weeks? Under this assumption n = 400/52

$$\text{and } \log v^n = -\frac{400}{52} \times \log 1.0375 = -.1229854260 = \bar{1}.8770145740.$$

Antilog .8770145740 = 7.44 × 1.01260 × 1.000008 × 1.000000555
= .7533808451

so v^n = 7.533808451

also $j_{(52)}$ = .036827007628 (per Table II).

$$\text{Thus} \quad a_{\overline{n}|}^{(52)} = \frac{.2466191549}{.036827007628} = 6.6966927$$

which has to be multiplied by 12.83 × 52 or 667.16 giving as the final answer 4467.7655.

Note the slight difference between this and the answer to example (5).

(6) For how many weeks will a payment of 1000 suspend an annuity of 12 per week, at 3% per annum interest and assuming 52.1775 weeks to the year?

We have the following equation from which to find n

$$12 \times 52.1775 \times \frac{1-v^{n}}{j_{(52.1775)}} = 1000$$

whence $v^{n} = .9527778953$.

We find $\log v^{n}$ to be $\bar{1}.9789916728 = -.0210083272$ which we divide by $\log v = -\log(1+i) = -.0128372247$ to get $n = 1.63651628$ years.

Therefore the required number of weeks is

$$\begin{aligned} &1.63651628 \times 52.1775 \\ &= 85.3893 \text{ weeks.} \end{aligned}$$

(7) In consideration of a payment now of 1000, by how many weeks should we shorten an annuity of 12 per week payable for 300 weeks, at 3% per annum, 52.1775 weeks to the year?

We find first, as in example (5), the present value of the annuity for 300 weeks. This is 3309.7679. Subtracting 1000 we have 2309.7679 and we must find as in example (6) how many weeks annuity this is equivalent to. The number is 203.8673.

Thus the payment now of 1000 shortens the annuity from 300 to 203.8673 weeks, that is by 96.1327 weeks.

(8) To construct a short table that will quickly give the present value of a weekly annuity for any integral number of weeks not exceeding 900, assuming compound interest at the rate of 3½% per annum with 52.1775 weeks to the year.

The value of a weekly annuity of 1 per week for n weeks is

$$r\, a^{(r)}_{\overline{n/r}|} = r\, \frac{1 - v^{\frac{n}{r}}}{j_{(r)}}$$

where $r = 52.1775$. Now if $n = 30\,p + q$ we can write the value of the annuity as

$$\frac{r}{j_{(r)}} - \frac{r\, v^{\frac{n}{r}}}{j_{(r)}} \times v^{\frac{30p}{r}}$$

If we put $\frac{r\, v^{\frac{2}{r}}}{j_{(r)}} = A_q$ and $v^{\frac{30p}{r}} = B_p$ and construct tables of A_q for $q = 0, 1, 2, \ldots 29$ and of B_p for $p = 0, 1, \ldots$ the required annuity value can be easily determined from the formula

$$A_0 - A_q B_p.$$

First $A_0 = \frac{r}{j_{(r)}} = \frac{52.1775}{.034412769904} = 1516.2249405.$

We now calculate $v^{\frac{1}{r}}$, $v^{\frac{10}{r}}$, $v^{\frac{30}{r}}$, $v^{\frac{300}{r}}$, $v^{\frac{900}{r}}$ from Tables I, etc. The table of values of A_q we now get by starting with A_0 and continually multiplying by $v^{\frac{1}{r}}$, that is $A_1 - v^{\frac{1}{r}} A_0$, $A_2 = v^{\frac{1}{r}} A_1$, etc. We calculate $A_{10} = A_0 v^{\frac{10}{r}}$, $A_{20} = A_{10} v^{\frac{10}{r}}$, $A_{30} = A_{20} v^{\frac{10}{r}} = A_0 v^{\frac{30}{r}}$, to be used as check values.

The tables of values of B_p we get similarly by continuous multiplication by $v^{\frac{30}{r}}$, thus $B_0 = 1$, $B_1 = B_0 v^{\frac{30}{r}}$, etc. Check values are obtained from $B_{10} = v^{\frac{300}{r}}$, $B_{20} = B_{10} v^{\frac{300}{r}}$, $B_{30} = B_{20} v^{\frac{300}{r}} = v^{\frac{900}{r}}$.

The tables are calculated to 9 or 10 significant figures and later cut down to 7 figures. The completed tables follow:

Table for Ascertaining the Present Value of a Weekly Annuity of 1 for n Weeks — Interest 3½% per Annum — 52.1775 Weeks to the Year

Present Value = 1516.225 − $A_q B_p$ where n $=30p + q$

q	A_q	$30p$	B_p
0	1516.225	0	1.0000000
1	1515.226	30	.9804149
2	1514.227	60	.9612133
3	1513.229	90	.9423878
4	1512.232	120	.9239310
5	1511.235	150	.9058357
6	1510.239	180	.8880948
7	1509.243	210	.8707014
8	1508.249	240	.8536486
9	1507.255	270	.8369297
10	1506.261	300	.8205384
11	1505.268	330	.8044680
12	1504.276	360	.7887124
13	1503.285	390	.7732653
14	1502.294	420	.7581209
15	1501.304	450	.7432730
16	1500.314	480	.7287159
17	1499.325	510	.7144439
18	1498.337	540	.7004514
19	1497.350	570	.6867330
20	1496.363	600	.6732832
21	1495.377	630	.6600969
22	1494.391	660	.6471688
23	1493.406	690	.6344939
24	1492.422	720	.6220673
25	1491.438	750	.6098840
26	1490.455	780	.5979393
27	1489.473	810	.5862286
28	1488.491	840	.5747473
29	1487.510	870	.5634908
30	1486.529	900	.5524547

e.g., 467 weeks: value is 1516.225 − 1499.325 × .7432730 = 401.8172.

Appendix I

(1) It will sometimes happen that values of $\log(1+i)$ or $j_{(r)}$ are required for a rate of interest not given in Tables I and II. In this case we can

either (a) calculate the value from Tables III, IV, V and VI. For $\log(1+i)$ this calculation will be merely the determination of a logarithm e.g. for $3\frac{5}{16}\%$ we have to find $\log 1.033125$ which can be readily done, but only to 10 place accuracy. For $j_{(r)}$ we must calculate $r\{(1+i)^{\frac{1}{r}}-1\}$ which involves finding the $\log(1+i)$, and the antilogarithm of one rth of this. The final result will be accurate only to about 7 places, and the process is fairly long:

or (b) we can interpolate in Table I or II as the case may be assuming (as will usually be the case) that the rate of interest for which the function is required is within the range of the Table. Now ordinary (first difference) interpolation is not sufficiently accurate neither is second difference interpolation. However, third difference interpolation is. The maximum error is not greater than $\frac{3h}{128}\left(\frac{d}{di}\right)^4$ where h is the interval between the values of i in the Table. For the first part of Table I (i.e. from 0% to 6%) $h=.00125$ and the maximum error is .00000 00000 0015 while from 6% to 10% $h=.0025$ and the maximum error is .00000 00000 024: as for Table II $h=.0025$ and the maximum error is .00000 00000 017 for $r=2$ rising to .00000 00000 055 for $r=\infty$.

The interpolation to third difference can be done by the usual central difference methods, but perhaps the easiest way is as follows:—
Use four tabulated values, two on each side of the value required. Then

(i) if, as will often be the case, the value is required for i half way, quarter way or three quarters way between the tabulated rates, use the appropriate one of the following formulas:—

$$u_{1\frac{1}{2}} = \frac{-u_0 + 9\,u_1 + 9\,u_2 - u_3}{16}$$

$$u_{1\frac{1}{4}} = \frac{-7\,u_0 + 105\,u_1 + 35\,u_2 - 5\,u_3}{128}$$

$$\text{or } u_{1\frac{3}{4}} = \frac{-5\,u_0 + 35\,u_1 + 105\,u_2 - 7\,u_3}{128}$$

Thus if $j_{(52)}$ is required for $3\frac{1}{16}\%$, u_0 is $j_{(52)}$ for $2\frac{3}{4}\%$, u_1 that for 3%, u_2 that for $3\frac{1}{4}\%$ and u_3 that for $3\frac{1}{2}\%$: we require $u_{1\frac{1}{4}}$ which we get at once on the machine as $105\,u_1$ plus $35\,u_2$ minus $5\,u_3$ minus $7\,u_0$, the net divided by 128. The answer is .030174165568.

(ii) but if we require a value for a rate of interest, not half or quarter or three quarters way between tabulated rates, say $\log(1+i)$ for 3.1%, proceed as follows:—choose u_0, u_1, u_2, u_3 as before. Let the required value be u_{1+x}. Interpolate (by ordinary or first difference interpolation) between u_1 and u_2, that is calculate $x\,u_2 + (1-x)\,u_1$: call the result u'_{1+x}. Do the same between u_0 and u_3 that is calculate $\frac{(1+x)\,u_3 + (2-x)\,u_0}{3}$ and call the result u''_{1+x}.

Then the required u_{1+x} is equal to

$$u'_{1+x} + \frac{(1-x)\,x}{2}(u'_{1+x} - u''_{1+x}).$$

For instance in our example $u_0 = \log 1.02875$, $u_1 = \log 1.03$, $u_2 = \log 1.03125$ and $u_3 = \log 1.0325$. We require $u_{1.8}$. Interpolating for 3.1% between 3% and 3.125% we have

$$u'_{1.8} = .8\,u_2 + .2\,u_1 = .013258614187.$$

Similarly interpolating between u_0 and u_3,

$$u''_{1.8} = (1.8\,u_3 + 1.2\,u_0)/3 = .013257975485.$$

Now $x\,(1-x)/2 = .08$ and so

$$u_{1.8} = u'_{1.8} + .08\,(u'_{1.8} - u''_{1.8}) = .013258665283.$$

From Tables III, etc., we get the value of log 1.031

as .0132586652. The correct value is .013258665284. As another example let us calculate $j_{(52)}$ for 3.1%.

$$\begin{aligned} u_0 &= j_{(52)} \text{ for } 2\tfrac{3}{4}\% \\ u_1 &= j_{(52)} \text{ for } 3\% \\ u_2 &= j_{(52)} \text{ for } 3\tfrac{1}{4}\% \\ u_3 &= j_{(52)} \text{ for } 3\tfrac{1}{2}\%. \end{aligned}$$

We require $u_{1.4}$

$$u'_{1.4} = .4\,u_2 + .6\,u_1 = .030537476446$$

$$u''_{1.4} = \frac{1.4\ u_3 + 1.6\,u_0}{3} = .030531708137$$

Difference = .000005768309

Multiply by $\frac{.4 \times .6}{2} = .12$ .000000692197

Add to $u'_{1.4}$ .030538168643 = $u_{1.4}$.

The correct value is .030538168639

and the best we can get by calculating from Tables III, IV, etc., is .030538144.

Note: When interpolating in Table I for i between $5\frac{5}{8}\%$ and $6\frac{1}{4}\%$ we must remember that the interval for i changes at 6% and be careful to take u_0, etc., at equal intervals, e.g. for 5.9% we must take $u_0 = \log(1 + i)$ for $5\frac{1}{2}\%$, u_1 for $5\frac{3}{4}\%$, u_2 for 6% and u_3 for $6\frac{1}{4}\%$.

(2) If $j_{(r)}$ is required for a value of r not given in Table II, e.g. $j_{(6)}$ we must either calculate from Tables III, etc., as indicated in (1) (a) above or else get the value by summation of a series as for instance

$$j_{(r)} = i - \frac{r-1}{2\,r}\ i^2 + \frac{(2\,r-1)(r-1)}{6\,r^2}\ i^3 - \ldots.$$

except that if $j_{(r)}$ is required for weekly annuities when the number of weeks to be assumed in a year is neither 52 or 52.1775 but some other near number, e.g. $52\frac{1}{7}$, we can interpolate (or exterpolate if necessary) between $j_{(52)}$ and $j_{(52.1775)}$. Thus for $j_{(52\,1/7)}$ put this equal to

$$\frac{(52.1775 - 52\frac{1}{7})\ j_{(52)} + (52\frac{1}{7} - 52)\ j_{(52.1775)}}{52.1775 - 52}$$

$$\text{or } j_{(52\ 1/7)} = \frac{97\ j_{(52)} + 400\ j_{(52.1775)}}{497}$$

Again if a year is assumed to equal 365¼ days we require $j_{(52\ 5/28)}$: put this equal to (this is an exterpolation)

$$\frac{(52.1775 - 52\tfrac{5}{28})\, j_{(52)} + (52\tfrac{5}{28} - 52)\, j_{(52.1775)}}{52.1775 - 52}$$

$$\text{or } j_{(55\ 5/28)} = \frac{-3\, j_{(52)} + 500\, j_{(52.1775)}}{497}.$$

For example $j_{(52\ 1/7)}$ 3% will be found equal to .029567182004.

Appendix II

Examples (6) and (7) involve weekly annuities payable for so many weeks *and a fraction of a week.* This brings up the question of the interpretation of the results. What is meant for example by an annuity of 10 a week for 106½ weeks?

The formula for $a_{\overline{n}|}^{(r)}$ has been used above, and is usually used, as though it held for such non-integral periods. This evidently requires that if we have an annuity for an integral number of periods plus $\frac{1}{p}$th of a period the value of the annuity payment for the final $\frac{1}{p}$th of a period is $\frac{1-(1+j)^{-\frac{1}{p}}}{j}$, valued at the beginning of such $\frac{1}{p}$th period (that is just after the last full payment). In this formula j is the effective rate of interest for a complete period. We now have two methods of making the final payment:—

(a) we can make it at the end of the $\frac{1}{p}$th of the complete period, when the amount of the payment should be

$$\frac{(1+j)^{\frac{1}{p}}-1}{j} = \frac{1}{p}\left(1-\frac{p-1}{2p}j+\ldots\right)$$

which is slightly less than $\frac{1}{p}$.

(b) We can make it at the end of the next *complete* period, when the amount of the payment should be

$$\frac{(1+j)-(1+j)^{1-\frac{1}{p}}}{j} = \frac{1}{p}\left(1+\frac{p-1}{2p}j-\ldots\right)$$

which is slightly more than $\frac{1}{p}$.

In practice, the amount of the final payment is invariably taken as $\frac{1}{p}$ so that the total actual payments made correspond with the total period of the annuity. To conform to the above theory such a final payment of $\frac{1}{p}$ should be made neither at the end of the final complete period nor at the end of $\frac{1}{p}$th of it but at a point approximately halfway between these two points. However, in practice the final payment, of $\frac{1}{p}$, is usually made at the end of $\frac{1}{p}$th of the period, except in the case of weekly annuities when it is often made at the end of the week. The theoretical error introduced by these sensible practical procedure is of course negligible.

Appendix III

So far in this paper and the examples it has been implicitly assumed that all the annuities dealt with are payable at the end of the period of payment; that is at the end of each year for yearly annuities, at the end of each week for weekly annuities and so on. The amounts and present values of annuities payable at the beginning of the period can be immediately derived from those of annuities payable at the end of the period as follows:—

Present value of an annuity of 1 per annum for n years payable (in installments of $\frac{1}{r}$) at the beginning of each $\frac{1}{r}$th of a year equals

$$a^{(r)}_{\overline{n-\frac{1}{r}}|} + \frac{1}{r} \text{ or alternatively } a^{(r)}_{\overline{n}|}\left(1+\frac{j_{(r)}}{r}\right)$$

Amount of an annuity of 1 per annum for n years payable (in installments of $\frac{1}{r}$) at the beginning of each $\frac{1}{r}$th of a year equals

$$s^{(r)}_{\overline{n+\frac{1}{r}}|} - \frac{1}{r} \text{ or alternatively } s^{(r)}_{\overline{n}|}\left(1+\frac{j_{(r)}}{r}\right)$$

Appendix IV

Up to this point it has been implicitly assumed that, in the case of an annuity payable r times a year, valued at rate of interest i, the rate of interest given is an *effective* annual rate and not a *nominal* annual rate convertible r times a year. If in any instances the given rate is a nominal one the valuation of the annuity is effected very readily by working in time units of $\frac{1}{r}$th of a year.

For example the present value of an annuity of 1 a month for 60 months, at 3% per annum effective rate of interest is

$$12\,\frac{1 - v^5}{j_{(12)}} \text{ at } 3\%$$

but at 3% per annum nominal rate convertible monthly it is

$$\frac{1 - v^{60}}{i} \text{ at } \tfrac{1}{4}\%.$$

Such calculations at nominal rates convertible with the same frequency as the annuity payments are relatively simpler than those at effective annual rates: the function $j_{(r)}$ does not have to be used. The only difficulty that may arise is in the determination of log $(1 + i)$ with sufficient accuracy. In the above example, 3% convertible monthly, the value of log $(1 + i)$ for ¼% is given in Table I, but if we required the value of ⁵⁄₂₄% corresponding to 2½% convertible monthly we must proceed as in Appendix I, that is either we would have to calculate log 1.002083333 from Table III, etc., or we must interpolate in Table I.

In the case of weekly annuities, we are dealing with very low rates of interest (per week): e.g. at 3¼% convertible 52 times a year the weekly rate of interest is $\frac{1}{1600} = .000625 = \frac{1}{16}$ % and unless we need extreme accuracy for a large number of weeks it will be sufficient to calculate log $(1 + i)$ from Tables III, etc. If we do need greater accuracy than this gives, it is usually quicker to calculate log $(1 + i)$ from the series

$$\log(1 + i) = .4342944819\left(i - \frac{i^2}{2} + \frac{i^3}{3} - \dots\right)$$

only the first three or four terms of which need to be used.

PROBLEMS IN RELATION TO CONTRACTUAL LIABILITY INSURANCE

BY

JOHN W. AINLEY

Of late years one of the very important developments with respect to Casualty insurance is the increasing practice of the use of Contractual Agreements. Until comparatively recently, contractual or "hold harmless" agreements were found simply in railroad sidetrack agreements and in some lease agreements. The contractual agreement is an indemnifying clause or clauses forming a part of a complete contract or the agreement may be a separate contract in itself, and may now be found not only in railroad sidetrack agreements and leases but also in contracts between an owner or a general contractor and various sub-contractors for the performance of specified work. It may be found in purchase agreements where the seller is required to hold the purchaser harmless with respect to material or commodities sold, or with respect to the erection and installation of that commodity. There may also be found "hold harmless" agreements in joint use contracts such as will be found in instances where the lines of a telephone or telegraph company may be strung on the poles of an electric light and power company, or vice versa.

Such agreements vary widely according to their terms and in many instances are quite complex and give rise to conflicting opinions as to the extent of the assumed liability which in many cases may be quite beyond reason. The indemnitor very often does not realize the full extent of the obligations which he is assuming. Even if he possibly realizes the seriousness of his obligations, nevertheless, he enters into the agreement because of keen competition and the realization that unless he does follow this course, the indemnitee will place the business elsewhere. Or in the case of a lease the indemnitor or lessee cannot acquire the use of property or privileges which by the location or terms would be most advantageous for his immediate purposes in the maintenance of his business.

Naturally, the assumption of such obligations will spread whenever one who has been required to assume such obligations can in turn pass on similar obligations to others with the result that contractual or hold harmless agreements are becoming more and more extended in scope and are being applied to a wider field of activities as this practice progresses.

It is unfortunate that this condition exists whereby obligations assumed go beyond the scope of reason, and a principal can require those doing business with him to assume obligations which are rightfully and legally those of the principal. As an illustration of a very dangerous type of agreement, the following may be typical:

> "The Contractor shall assume complete responsibility in and for all loss, for injury to persons or property resulting directly or indirectly, in whole or in part, from the performance of the work contemplated by this contract or in connection therewith and shall indemnify and hold harmless the principal from any and all loss, against damage or injury caused or occasioned directly or indirectly from the performance of work contemplated by this contract or in connection therewith."

Upon analysis, it is revealed that there is no limitation as to bodily injuries accidentally sustained, neither is there limitation as to property in the care, custody and control of the contractor, nor is there limitation as to liability imposed upon the contractor by law because of negligence. The clause involves waiver of subrogation with respect to injured employees of the contractor whether the injury arises in whole or in part through the negligence of the principal. It also includes indemnification of the principal against suit by an injured employee of the contractor whether the injury is occasioned in whole or in part by the negligence of the principal. It involves defense of the principal against suit by employees of other contractors or the general public whether the injuries are occasioned in whole or in part by the negligence of the principal. It also may involve maintenance or defective workmanship.

To require a contractor to assume such an obligation is wholly unnecessary and unjust. It is perfectly right that the principal should require the contractor to purchase workmen's compensation insurance in accordance with the provisions of the Workmen's Compensation Act of the state in which the work is being performed. It is also reasonable that the contractor should be required to have proper and adequate public liability and property damage protection against losses and claims for which he may be legally liable. It is also justifiable to require a contractor to purchase Contractors' Protective Liability insurance in order that there may be proper provision against liability which may arise out of the negligent acts of sub-contractors. The contractor could be required justifiably to purchase Owners' or Contractors' Protective coverage in the name of the principal to protect that principal because of any liability which might arise in connection with the negligent acts of the contractor.

All of these requirements could be introduced in the terms of the contract or agreement and should be satisfactory; however, if such a procedure is not satisfactory, the agreement in any event should be limited to justifiable terms.

Naturally, the one assuming the obligations under such a contract, if the possibilities of such obligations are realized, will seek a means of protection in the form of insurance, or very possibly the terms of the contract—in order to make certain that the assumed obligations will be lived up to—will require the purchase of insurance. The contract may very often specify definitely the limits at which insurance is to be provided. It, therefore, becomes the problem of the insurance carrier as to what part or parts of the assumed obligations are rightfully the subject matter of insurance and whether coverage can be provided at a premium commensurate with the obligations. An analysis of the indemnifying portion of the agreement may reveal a situation whereby the indemnitor has simply agreed to make provision against his direct obligations and the question may thus resolve itself intq simply the provision of direct liability coverage.

On the other hand, the assumed obligations may be beyond those for which he would normally be liable but they are of such a nature as not to be particularly detrimental and they may be insurable through the indemnitor's purchase of some of the already existing forms of liability insurance in the name of the principal, thus satisfying the terms of the agreement. Other obligations assumed while not necessarily being definitely described by existing forms of insurance may, nevertheless, be insurable according to some procedure established particularly for such obligations. Other obligations assumed may be so broad and sweeping by their terms that they are not insurable and in reality are wholly unjustifiable.

It is quite possible in such circumstances that after an indemnitor has been brought to the realization of the gravity of the obligations he has assumed, he can prevail upon the principal to agree to revised terms which are within reason and justification. A notable example of this is in connection with sidetrack lease agreements as they existed in the majority of instances at one time. The railroads being in an advantageous position, imposed very sweeping and all inclusive obligations on their clients or on industry in connection with the construction, operation, maintenance and use of sidetracks or spurtracks. Such obligations were to a large measure uninsurable, or only insurable at a prohibitive premium, and industry was faced with the problem of being called upon to assume obligations against which it could not purchase insurance protection.

Out of this was evolved an agreement in a standardized form known as the National Industrial Traffic League Liability Clause. Under this clause, the industry indemnifies and holds harmless the railroad against losses arising out of the industry's sole negligence, and in the event of there being joint or contributory negligence by both parties to the contract, the loss is borne by both equally. This is an equitable agreement and is confined to the legal liability of the industry with the possible exception of a situation arising whereby both the industry and the railroad may be held jointly negligent, but distribution of negligence being greater on the part of one of the parties to the contract. This, however, works both ways and does provide a simple means of sharing the responsibility when both parties to the contract are negligent to some degree.

In view of these circumstances, the cost of insurance for such an agreement need not be substantial, and in fact could very readily not be much, if any, in excess of the actual expense of issuing the coverage. A very nominal rate has been established for coverage for this specific agreement and the rate applies per agreement covered. No adjustment of premium on the basis of the number or extent of the sidetracks to which the individual agreement applies, is made. The question has been raised by underwriters as to whether or not this is a proper procedure, and it has been contended by some, that the premium charge should vary in accordance with the physical exposure but such a procedure involving in many cases a very substantial and prolonged investigation would not be warranted by the ultimate premium involved. A study on this basis would require a consideration of the length and the number of sidetracks under the agreements. Consideration would have to be given to the density of traffic or the frequency of use and whether other industries are serviced by the same track at some point beyond the location of the insured. These are but a few of the many factors calling for investigation. All this would require considerable time and a fair expenditure, and in most instances would probably prove impracticable. Thus, in this particular case where there is a uniform agreement which practically does not assume liability beyond the legal liability of the industry, it is quite reasonable to establish a uniform and nominal charge per agreement without regard to the physical exposure. Unfortunately, the National Industrial Traffic League Liability Clause is the only liability agreement about which there has been found a fairly widespread use and a uniformity of application; therefore, until such time as buyers, industry, contractors or any other purchasers of insurance who may be obliged to assume the role of indemnitor under various types of agreements, can influence their principals to adopt uniform practices with respect to the inclusion of liability clauses in their contracts, it is necessary that all such liability clauses other than the National Industrial Traffic League Liability Clause be individually underwritten and premium be determined on the peculiar facts of each case. This, of course, will involve a substantial amount of investigation and study for each separate agreement and in the end it is very often true that the original investigation and the issuance of an endorsement may cost more than a reasonable premium charge with the result that there is practically no premium left for possible losses.

After an agreement has been reviewed to determine the extent of liability assumed, the next problem is the determination of a just and adequate premium. This determination is based not only upon the extent of the liability assumed under the agreement but it must also recognize the extent of the exposure to which the agreement will apply. Basically, the premium charge may be some function of rates already established for forms of liability insurance which may be analogous to the assumed obligations. This may mean that a flat charge will serve the purpose, or it may be possible that the premium shall be based on each $100. of contract cost similar to the charge established for Owners' or Contractors' Protective Liability insurance, or the charge may be a percentage of the workmen's compensation premium which the indemnitor pays to cover his direct workmen's compensation obligations for the operations involved under the contract. Then again, the terms of the agreement may be of such a nature as to involve a combination of these methods of premium calculation.

Under the sidetrack agreements, it is often found that although the wording is not the same, the terms are the same as the National Industrial Traffic League Liability Clause. That is, the indemnitor is responsible for his own negligent acts, and the indemnitee (the railroad) is likewise responsible for its own negligent acts but in the event of joint negligence, the liability is shared equally, or possibly each party assumes its proportionate share of the loss. The charge for an agreement of this type would probably be the same as that for the National Industrial Traffic League Liability Clause.

A variation of this is the instance where the indemnitor is responsible for injuries to his own employees, and the indemnitee is responsible for injuries to its own employees, with each party being responsible for its own negligence in all other cases. In this particular instance, the undertaking assumed by each party is approximately equal but the hazard as determined by the employee exposure may not be equal and the nominal charge previously mentioned may not be satisfactory. To go a step further, the indemnitor may be responsible for any and all liability except that due to the sole negligence of the railroad. This contemplates assumption of complete liability on account of injuries arising out of joint or concurring negligence and, consequently, calls for a substantially greater premium charge. Then there is the case when complete liability is assumed regardless of negligence. This, of course, is a very broad and sweeping assumption and if insurance is provided, it is usually done after the actual physical conditions are known, and it is found that there is not a great probability of there being conditions which will develop losses foreign to losses for which the indemnitor would be legally liable. The carrier may feel that to insure the agreement in total would be unwise, and it is then indicated specifically just what hazards the carrier will insure. Any losses beyond this specific enumeration even though assumed under the agreement, would not come within the provisions of the coverage provided and the indemnitor would have to carry that responsibility without insurance.

Another type of agreement is that contained in contracts pertaining to construction operations. Such contracts may involve the indemnification of the owner of the project as principal, or the general contractor may be principal under a contract with some sub-contractor. Under an agreement with owner and principal, the "hold harmless" clause may require complete indemnification of the owner. If there are no employees of the owner on or about the job, either participating in the work or working on the same premises as the contractor, the assumed liability is very closely equivalent to owners' protective insurance and the contractor has two courses. He could purchase an owners' protective insurance policy in the name of the principal. If this is not satisfactory and it is insisted that the wording of the indemnification clause of the contract be incorporated in an insurance policy, the coverage can be endorsed on the contractors' direct public liability policy but the premium should be at rates somewhat higher than the established owners' protective insurance rate. The question may be asked as to why the coverage when endorsed on the contractor's direct policy should call for a higher premium charge than if an owners' protective liability policy were issued, inasmuch as the exposure is apparently the same. This is a reasonable question and the answer is simply that when an owners' protective policy is issued, it is issued according to the terms, limitations and exclusions of an already established policy, whereas when the indemnifying clause of the agreement is covered by endorsement, the coverage is not written in accordance with prescribed procedure, terms, and limitations, but is a specific coverage written for the specific contract and, therefore, calls for a little larger premium.

If there are employees of the owner on or about the job, the exposure is broadened and the assumed liability is not only equivalent to contractors' protective insurance, but also involves coverage on account of injuries to members of the public because of the negligent operations of the owner, injuries to employees of the owner through the negligence of the owner, and also injuries to employees of the contractor through the negligence of the owner. This form of agreement would require a substantially higher premium if insured, than the previously discussed coverage. In addition it would call for a percentage of the workmen's compensation premium of the contractor to account for the waiver of subrogation, in the event of injuries to contractors' employees through the negligence of the owner. It is questionable whether the liability assumed with respect to owner's employees because of the negligence of the owner is insurable.

There may be further variations of the foregoing where the contract requires complete indemnification for the owner except with respect to the liability arising out of the owners negligence. This form would also be written at rates which are some function of the owners' protective insurance rates, but in some instances, there may be a slight waiver of subrogation with respect to injuries to employees of the contractor, such as injuries arising out of the joint and concurring negligence of the owner and contractor, the assumed obligation very possibly would not warrant additional premium based on a percentage of the contractors' workmen's compensation premium.

Then, of course, there is the simplest form of all, in which the owner requires indemnification on account of the operations of the contractor. That is, where there is no assumption of liability on account of the negligence of the owner. This is analogous to owners' protective insurance, and the most satisfactory method would be the purchase of an owners' protective policy by the contractor in the name of the owner. If, however, the coverage is required on the basis of endorsing the indemnifying clause on the contractors' public liability policy, a slightly increased charge would have to be made, as explained heretofore.

Another group of indemnifying clauses in connection with contracting operations, involves the indemnification of the general contractor as principal or indemnitee, and a subcontractor as the indemnitor. Here again as previously discussed in connection with an owner, the agreement may involve complete indemnification of the contractor and also as previously mentioned in connection with the owner, if there are no employees of the general contractor on or about the job or participating in the work, the exposure is very similar to contractors' protective insurance and the sub-contractor has either the course of buying a direct contractors' protective insurance policy in the name of the contractor or if the coverage is endorsed on his own policy, it must be written at a premium slightly in excess of the contractors' protective premium.

On the other hand, if there are employees of the contractor working on the job at the same time, there is then the combination of protective insurance plus the waiver of subrogation on account of injuries of employees of the subcontractor arising out of the negligence of the contractor as well as injuries to employees of the contractor, which would call for necessary additional premium.

Another type of contract is that which will carry indemnifying clauses in connection with building lease agreements. The indemnifying clauses of these agreements require the lessee to hold the lessor harmless to a greater or lesser degree, depending upon the terms of the contract, and may also include provision for idemnification with respect to certain conditions or operations which are peculiar to the building, or to the occupancy of the building. If the direct public liability obligation of the lessee is subject to rating on an Owners, Landlords' & Tenants' basis, the premium for the assumed liability may be determined as a function of the lessee's direct liability premium. This is usually a flat premium charge rounded out to reach at least a minimum. If the agreement involves the assumption of the complete legal liability of the lessor, the terms of the agreement can be met in several ways. If it is required that the terms of the agreement be included as part of the lessee's policy by endorsement, the premium could very properly be determined on the basis of the usual additional interest charge, subject to a minimum premium. As a matter of fact, if the lessor were endorsed on the lessee's policy under the usual additional interest procedure without any mention of the terms of the lease, the liability assumed would probably be completely taken care of and this is the procedure sometimes followed. On the other hand, in order that the limits of the policy would apply in total to the lessor, and not be shared by both the lessee and the lessor as would be the case of an additional interest endorsement, a separate policy may be taken out by the lessee in the name of the lessor, providing direct public liability coverage. This, of course, would be issued at the rates which would be applicable to the lessor's direct liability exposure. If the assumed liability does not involve the complete liability of the lessor, the terms of the agreement can be endorsed at some portion of the usual additional interest charge. This would have to be determined in accordance with the terms of the specific agreement but, in any event, the premium should at least be sufficient to offset the cost of investigation and the issuance of the required protection.

If the lessee is subject to rating for his direct obligations on a payroll basis, it would not be logical to base the premium for the indemnifying agreements on a function of the lessee's direct liability premium. In this instance where direct liability coverage is provided on the basis of payroll, the lessee will have a large number of employees on the premises and as a consequence the exposure of the lessor may be substantially greater than that of the lessee, in that such employees are public to the lessor, in addition to the general exposure which would involve members of the public other than employees of the lessee who would be public to both the lessee and the lessor. Therefore, under these circumstances, since the premium is to be a measure of the liability of the lessor, it should be determined by a method which would be analogous to the procedure which would apply if direct liability coverage were issued to the lessor. In other words, the premium should be some function of area and frontage rates which would be used if a direct liability policy were being issued to the lessor. Inasmuch as this cover is to be endorsed on the lessee's policy, whatever charge is made should be in the form of a flat premium and, therefore, it may be calculated as a percentage of the area and frontage premium rounded out to some flat figure. Of course, if the agreement is a complete "hold harmless" agreement and the lessor, if a direct liability policy were issued to him, would be subject to Landlords' Protective cover, the premium would be approximately 50% of the area and frontage premium, just as is provided for this form of coverage, subject, of course, to a minimum premium. Also, it might be possible, instead of endorsing the coverage on the lessee's policy to, here again, issue a policy for the lessee in the name of the lessor at the prescribed rates and premium for such coverage. When the coverage is endorsed on the lessee's policy, and the liability assumed is partial or incomplete, the function of the direct premium applicable to the lessor, of course, should be smaller than would be the case where complete liability is assumed, keeping in mind nevertheless, that at least sufficient premium should be charged to justify the cost of providing the insurance.

It probably would be of advantage at this point to review a few agreements which have actually been encountered in order that we might bring out more clearly the problems which actually arise in providing this form of insurance.

A railroad, when letting out contracts for various operations requires its contractors to agree to certain indemnifying or "hold harmless" clauses and also requires that the contractors will insure such obligations.

A part of one section of the contract reads as follows:

> "that he (the contractor) will not take or deposit earth or other material from or on any place or places outside the right-of-way of said railroad without the direction and consent of the Chief Engineer, and that he will hold the railroad free and harmless from all loss, cost, damage, or injury or claim therefor, to persons or property, arising from or growing out of any act or omission of any person or persons employed by or under him, or by or under his agents or subcontractors in the prosecution of said work, or any part of it."

This portion of the agreement is comparable to Owners' Protective coverage for the railroad, as liability is limited to claims arising from or growing out of any act or omission of the contractor.

Another section of the agreement contains the following provisions:

> "The contractor further agrees that he will, and he does hereby assume all risk of loss and damage, to his own property, and to property in his custody and to the property of his employees, agents and servants, howsoever caused; and the contractor also assumes all risk of damage resulting from the death of or injury to himself, his agents and servants, while engaged in said work, and while traveling to and from the same; and he agrees to hold the railroad free and harmless from all loss, cost and expense on account thereof; and he agrees to indemnify and save harmless the railroad from all loss, cost and expense arising or growing out of any injury to any employee of the railroad caused by the negligence of the contractor or any of his employees, also from all loss, cost and

> expense arising or growing out of any injury to any person while upon the premises of the railroad caused by the negligence of the contractor, or any of his employees, also from all loss, cost and expense arising or growing out of any injury to any property whether belonging to the railroad or not, caused by any negligence of the contractor or any of his employees."

The first portion of this agreement involves property in the care, custody and control of the assured and, therefore, since such exposure is not considered as the subject matter of insurance under the regular property damage coverage, it also is not insurable as a part of an indemnifying agreement.

In the second portion of this section, the contractor assumes liability for injuries to himself and to his employees. There is involved a complete waiver of subrogation and also an agreement on the part of the contractor to hold the railroad harmless, in the event an employee sues the railroad at common law rather than to accept compensation. This, to a certain degree, is comparable to protective coverage as respects the railroad since the liability imposed is limited to the negligence of the contractor. Here again, the liability assumed by the assured or the contractor with respect to the property in his care, custody and control is not insurable. Also, the assumption is not entirely comparable to protective liability because protective liability excludes injuries sustained by employees of the assured no matter how such injuries may be caused.

Now in determining the premium, the facts pertaining to the particular job to which the foregoing clauses apply are of importance. For example, the percentage of the compensation premium of the contractor to be charged for the waiver of subrogation or defense of a common law suit against the railroad company by employees, depends entirely upon the extent to which the employees are subjected to the operating exposures of the railroad. The particular job to which this contract applied, consisted of work away from the right-of-way of the railroad line and, therefore, there was not a great deal of exposure to the railroad operations and the waiver of subrogation was not a very outstanding obligation assumed. For public liability, a rate of 25¢ per $100. of contract cost was established, plus 10% of the workmen's compensation premium for the waiver of subrogation. The same rate per $100. of contract cost applied for the property damage coverage, and a minimum premium was established for both public liability and property damage. As a matter of fact, the contract involved work which was not of substantial proportions and the premium developed on the basis of the rates established fell well within the minimum premium.

In another instance, an assured leased a building from a railroad company. In the lease there was a clause which, although not following the exact wording of the National Industrial Traffic League Liability Clause, was confined to the terms of that clause, and equivalent liability was assumed. A further clause in the agreement read as follows:

> "Entering into possession of the premises by the Lessee shall constitute an admission that the leased premises, including piping, wiring and all other fixtures and appurtenances, are in good, safe and satisfactory condition, and the Lessee hereby releases and agrees to hold harmless the Improvement Company from any and all liability for damage to the property of the Lessee and personal injuries to employees of the Lessee caused or arising out of any defect or insufficiency in said building or its piping, wiring or other fixtures or appurtenances."

Obviously, this clause involved a waiver of subrogation. Upon investigation it was found that there was a side track on the premises; therefore, it was necessary that a charge be established for this exposure. Since the liability assumed with respect to the side track, was similar to that of the National Industrial Traffic League Liability Clause, the established rate for that clause was charged insofar as the existence of the side track was concerned. There still remained, however, the liability assumed in connection with this clause with respect to the building, and also the liability with respect to the clause quoted above. Investigation revealed that this was a new building of one-story with no basement. The entire building was occupied by the assured, and they were responsible for the care of the building which was to be used as a wholesale grocery storehouse. There were no elevators in the building and the lessee was to furnish the heat. Furthermore, it was found that the waiver of subrogation was not of serious consequence. There were comparatively few employees of the assured in proportion to the size of the building. The assured was in full possession of the building and was responsible for its upkeep. Thus, there practically would never be an opportunity for subrogation against the building owner in the event of an injury to an employee. Having this in mind, and also because of the fact that the direct public liability of the assured or lessee came within Owners', Landlords' & Tenants' Liability, a premium charge for the assumed liability in connection with the building, was established at a figure somewhat less than 25% of the assured's Owners', Landlords' & Tenants' Liability premium.

An interesting agreement which is typical of agreements entered into between public utilities relative to the joint use of poles is as follows:

> "Whenever any liability is incurred by either or both of the parties hereto for damages for death of or injuries to the employees or for injury to the property of either party, or for death of or injuries to other persons or their property arising out of the joint use of poles under this agreement, or due to the proximity of the wires and fixtures of the parties hereto, attached to the poles covered by this agreement, the liability for such damages, as between the parties hereto, shall be as follows:
>
> 1. Each party shall be liable for all damages for such death of or injuries to persons or property caused by its sole negligence or by its failure to comply at any time hereafter with the specifications herein provided for.
> 2. Each party shall be liable for all damages for such death of or injuries to its own employees and/or its own property when caused by the concurrent negligence of both parties hereto, and/or due to causes which cannot be traced to the negligence of either party.
> 3. Each party shall be liable for one-half (½) of all such damages for such death of or injuries to persons other than employees of either party, and for one-half (½) of all damages for such injuries to property belonging to third persons, when caused by the concurrent negligence of both parties hereto, and/or due to causes which cannot be traced to the sole negligence of either party.
> 4. Where, on account of death or injuries of the character described in the preceding sections of this article, either party hereto shall make any payments to injured employees or to their relatives or representatives in conformity with the provisions of any Workmen's Compensation Act or any act creating liability in the employer to pay

compensation for death of or personal injury to an employee by accident arising out of and in the course of the employment, which act is operative whether said employer is or is not negligent, such payments shall be construed to be damages within the terms of the preceding paragraph numbered 1, and shall be paid by the parties hereto accordingly.

5. All claims for damages arising hereunder that are asserted against and/or affect both parties hereto shall be dealt with by the parties hereto jointly, provided, however, that in any case where the claimant offers to settle any such claim upon terms acceptable to one of the parties hereto, but not to the other, the party to whom said terms are acceptable, may, at its election, pay to the other party one-half (½) of the expense which such settlement would involve, and thereupon such other party shall be bound to protect the party making such payment from all further liability and expense on account of such claim."

There were additional paragraphs which, however, had no connection with liability assumed. The first clause is really a statement that the assured shall be liable for injuries to persons caused by its sole negligence, or by its failure to comply with any of the specifications contained in the contract. Incidentally, a review of those specifications seemed to indicate that this was merely a statement that the assured is liable for its own torts.

The second clause would involve a waiver of subrogation rights by the insurance carrier of the assured against the parties of the contract as respects compensation payments made to employees of the assured whose injuries arose out of the joint and concurrent negligence of both parties. It would also involve holding harmless the second party to the contract in the event an employee of the assured sued the second party rather than accept compensation.

The third clause is practically the same as the provisions appearing in the liability clause as adopted by the National Industrial Traffic League. Each party is liable for one-half in the event of joint or concurrent negligence on the part of both parties. There is one added point, however, that where injuries or damages are due to causes which cannot be traced to the negligence of either party, then each party is liable equally.

Clause four is simply a statement that each party will assume its legal obligations with respect to employees.

Clause five provides for expenses of adjustment and does not involve a very substantial assumption of liability.

The assured in this particular instance was a telephone company and the other party to the contract was an electric light and power company. At first glance the agreement appears to be quite formidable in its terms, and without further investigation it would be quite proper to apply a flat premium charge of some sizable proportion, plus a percentage of the compensation premium of the assured for the waiver of subrogation. It was found, however, that the application of a percentage of the workmen's compensation premium, plus the flat charge, would develop a very substantial premium, particularly when upon investigation it was learned that the assured operated 425 miles of line, but that only approximately 3 miles of this line, or less than 1% of the total were used in common with the power company. Thus, a waiver of subrogation charge would be all out of proportion to the liability assumed and the final premium determined upon was a very nominal flat charge with no percentage of the workmen's compensation premium for the waiver of subrogation.

It should be understood that the foregoing examples were selected at random and are not intended to be illustrative of any particular type of agreement which may be in common use, but they do serve for the purposes of this paper to illustrate the care which must be exercised, and the investigation which must be conducted in writing insurance to provide protection against assumed liability. They also demonstrate that very often, although the terms of an agreement may appear to be quite broad and sweeping in their scope, when the actual conditions are investigated only a very nominal premium charge is justifiable. It is not to be construed that this applies in all instances, and there are agreements which are so broad in their scope as to require a very substantial premium, and even in some cases at least parts of the agreement must be considered as uninsurable. It is unwise, however, to insure only the terms of an agreement without concurrent forms of insurance as very often it is difficult, if not possible, to differentiate under the wording of an agreement, between the liability assumed by the indemnitor and his legal liability and workmen's compensation or employers' liability obligations.

It is not the writer's intention to attempt a discussion of experience which has been actually developed under Contractual Liability insurance or of the adequacy or inadequacy of the premium charges which have been established. It may be pointed out, however, that there may not be a high frequency of losses under this form of insurance but the severity of loss may be substantial. Also, since it is sometimes rather difficult to differentiate between losses which may properly be considered as direct liability losses of the indemnitor, and assumed liability losses, claims which are thought to be Contractual Liability claims should be carefully scrutinized, in order that the experience may not be distorted by a misassignment of losses.

It is recognized that Contractual Liability involves many and varied possibilities and it is not the purpose to discuss all the ramifications of the subject here. Much could be written on its numerous phases covering the legal, the underwriting and the actuarial fields. An endeavor has been made to bring out the salient points and to demonstrate some of the difficulties encountered. It is hoped that this discussion will stimulate further study aiming toward the elimination or modification of abuses now extant with the result that more uniformity and simplification in the writing of this line of casualty insurance may be possible.

ABSTRACT OF THE DISCUSSION OF PAPERS READ AT THE PREVIOUS MEETING

SPECIAL FUNDS UNDER THE NEW YORK WORKMEN'S COMPENSATION LAW

GRADY H. HIPP

VOLUME XXIV, PAGE 247

WRITTEN DISCUSSION

MR. GEORGE D. MOORE:

It is evident from Mr. Hipp's paper that a very satisfactory piece of work was performed in making the valuation of these three Funds. Considering, however, the extremely meager data that was available due to the limited number of cases handled it is to be expected that the results are to be considered somewhat conjectural. There is, nevertheless, indicated quite an unhealthy deficit in the Second Injury Fund as well as the Reopened Case Fund, especially the latter.

One peculiarity in the data that is worth some consideration is that the amount of receipts in the nature of awards during 1937 does not seem to check with the facts. From the 1937 report of the Industrial Commission the following receipts are to be noted:

Receipts	Awards 1937
Second Injury Fund	$84,100
Reopened Case Fund	45,600
Vocational Rehabilitation Fund	84,000

It is evident from the above that there were at least 168 case awards to be accounted for during the year and if so it would seem as though the distribution should have been as follows:

	Cost to Carrier	Theoretical Receipts
Second Injury Fund	$500	$84,000
Reopened Case Fund	300	50,400
Vocational Rehabilitation Fund	500	84,000

It is quite possible that the awards to these Funds during 1937 are not in accordance with the above due to the wide variation in date of death. In some cases death may have occurred prior to the latest requirement of payment into the Reopened Case Fund. This seems to be borne out by information recently furnished by Mr. M. T. Howard, Director of Finance Bureau, as follows:

Awards Made Amounts	Number Paid in During 1937 Year	Distribution		
		Second Injury Fund	Reopened Case Fund	Vocational Rehabilitation Fund
$100	1	$ 100	....	....
$500 & $500........	16	8,000	....	$ 8,000
$500 & $300 & $500.	152	76,000	$45,600	76,000
Totals...........	169	$84,100	$45,600	$84,000

However, the far greater problem of how to keep these Funds solvent is yet to be attempted. The first action taken by the Conference Committee which has now been carried into effect is to provide for the adequate defence of claims against the first two Funds. No actuarial computation can be made at this time of the effects of the much needed work and only time will tell just what the actual results will be. This should be checked continuously each year and a new valuation attempted. It is probable in the meanwhile that the combined income as compared with disbursements under these two Funds might not be far apart during 1938 if they are properly watched. This is shown by past performances:

	1935	1936	1937
Receipts*	167,996.64	169,575.24	180,364.68
Disbursements†	167,966.50	197,401.09	182,708.18
Excess	30.14	– 27,825.85	– 2,343.50

* Excludes proceeds of Securities sold or reduced.
† Excludes amount paid for Securities.

If after a year or two under this administration it is still determined that a continual deficit is to be realized then more drastic steps will be necessary. One possible solution to overcome this difficulty might be to consider extending assessments now payable into the Security Funds upon their completion, for such a term of years as will rehabilitate the two apparently unbalanced Funds.

The Mutual Security Fund is already completed and at the present rate of contributions the Stock Fund will have arrived at the maximum required by law in a few more years. When this is accomplished then a careful revaluation of the deficient funds should be made and arrangements for a new requirement set up providing for a series of contributions from all the interests involved to gradually re-establish the solvency of the combined Funds. Any amounts that can legally be diverted from the Vocational Rehabilitation Fund will, of course, reduce the amount required. This method would seem to be the only practical course to pursue in order not to increase the rate of contributions from all sources at this time and still take care of the future.

MISS EMMA C. MAYCRINK:

When I was asked to write a discussion of Mr. Hipp's paper dealing with the Special Funds under the Workmen's Compensation Law, I declined because it seemed to me that Mr. Hipp had written an informative paper which indicated that, while there was much to be done, there was little that could be added to his outline of the present status of the funds. However, after the persuasive insistence of our president, I consented, still doubting that there was anything to be added to Mr. Hipp's excellent presentation of the known facts.

I found the text for a discussion in the statement of the purpose of the paper, which I will quote . . . "to summarize pertinent information with respect to the various funds (other than the Workmen's Compensation Security Funds) and to provoke comment on possible solutions of the problems involved." This is a challenge which no one can well refuse.

The first comment, or rather question, which suggests itself, is, why information as to the present status of the Workmen's Compensation Security Funds was not also included in the paper. Was it because there could be no question of a deficit in these funds? It certainly could not be because the funds were less worthy of interest for there is a limit to the payment to be made for both the stock and mutual companies. The references to sections of the compensation law governing these funds as given in Mr. Hipp's paper are to Article 5 (Sections 60 to 73 inclusive). It should be noted that the sections have been re-numbered and Article 5 now comprehends Section 75 to 88.

The following report of these funds which is taken from Volume II of the Superintendent's Annual Report for the year ended December 31, 1937 is included in this discussion for the information of the companies who may be interested. (This report had not been issued when Mr. Hipp's paper was written.)

	Stock Fund	Mutual Fund
Balance as of June 30, 1936	$552,878.98	$243,480.18
Paid into the funds by companies writing compensation policies during the fiscal year ended June 30, 1937	318,971.52	161,305.84
Interest credited (net)	8,344.46	3,978.06
Expenses paid	797.63	341.79
Totals of funds June 30, 1937	879,397.33	408,422.29
Cash in banks	416,178.58	204,000.41
Bonds (at cost)	463,218.75	204,421.88
	$879,397.33	$408,422.29

It would appear from the number of independent funds that the legislators have followed the sage counsel of a wealthy industrialist who warned against putting all of the eggs in one basket. The problem then becomes one of watching the baskets. The carriers and other contributors to the funds certainly have an equity in them, although relieved of responsibility for their safety and conservation. It may be said that the companies have only a very remote control.

Under the Workmen's Compensation Law contributions to all of the funds are compulsory at least upon the stock and mutual carriers. The custodian in all cases is the Commissioner of Taxation and Finance. The administration of all funds, except those required under Article 5 of the Workmen's Compensation Law, is chiefly in the hands of the Industrial Commissioner or his deputies, except that in the case of the Aggregate Trust Fund section 27 is administered by the State Insurance Fund as a fund separate and apart from its own funds and subject at all times to the rulings of the Industrial Board. Mr. Hipp cites a decision of the courts in which the State Fund is held to be "custodian" with its only duty "to pay over from the funds in its hands the awards directed by the board to be paid." With all due respect to the court, this decision is an understatement of the State Fund's duties.

There appears still to be some ambiguity in the terms as stated in the law where it provides for allowances to the State Fund for its "administration" of the Aggregate Trust Fund. The Commissioner of Taxation and Finance is "Custodian" under the law (now Section 91) of all moneys for the State Insurance Fund and as all moneys paid in are paid into the office of the Department of Taxation and Finance, the Commissioner of that department in practice is "Custodian" of the Aggregate Trust Fund. The clearest statement of the State Fund's part in carrying out the provisions of Section 27 is the statement in the rules drawn up by the Industrial Commissioners in 1920 from which I quote "Such fund (Aggregate Trust Fund) shall be under the direction of the Manager of the State Fund." The confusion of terminology should be corrected, if and when Section 27 of the law is amended, and explicit provisions as to duties and responsibilities should be given. Investments are limited to the kinds of investments required under the Banking Law for Savings Banks for all funds except those under Article 5 which requires "stocks and bonds of the United States or this state." The investments for the Aggregate Trust Fund are subject to prior approval of the Superintendent of Insurance. It is evident that not only are the funds in separate baskets but that several state departments have a part in their safekeeping.

The law does not require published reports of any of these funds and in no case is an examination or audit required. The annual report of the Industrial Commissioner includes a statement of income and disbursements covering the special disability (second injury fund), the vocational fund and the reopened case fund. It also includes a statement with the balance as of the end of the calendar year of the special disability and the reopened case fund. Reports of the Aggregate Trust Fund have been included each year in the reports of the Industrial Commissioner.

Mr. Hipp has given a summary of the financial status of the funds (page 249 of the *Proceedings*). He does not there state the source of these figures. However, in the following pages he has set up statements of assets and liabilities for each fund and has shown the source from which the figures were taken. The assets of the Second Injury and the Reopened Case Funds are as shown in the report of the Industrial Commissioner and the liabilities are those shown in the report of the examination made by the Insurance Department examiner, Mr. John D. Byrne, to the Industrial Commissioner. The statement of the Vocational Rehabilitation Fund was taken from a report of an assistant state accounts auditor to the State Comptroller. The report of the Aggregate Trust Fund in its entirety is similar to the annual report made by the State Fund to the Industrial Commissioner and to the Insurance Department. In connection with each regular examination of the State Insurance Fund the assets of the Aggregate Trust Fund have been verified and a statement of this Fund's condition as shown by the books and records in the State Fund's office has been included in the examiner's reports. At the request of the former Industrial Commissioner an examination of the Aggregate Trust Fund as of June 30, 1938 is now in process.

It is obvious that reports of the various funds should be more readily obtainable, not only in order that the contributors to the funds may follow developments but so that administrators succeeding other administrators in office may be able to know whether there are deficits, whether re-allocations of contributions should be made and in general, whether recommendations for amendments to the law should be made to the Legislature.

The carriers interested are now aware of the deficits in three of the funds and that some action should be taken. Through their committees and the Compensation Insurance Rating Board further studies are being made towards this end.

In addition to the questions Mr. Hipp has propounded, is it not pertinent to ask that consideration be given to requiring more complete reports of these funds annually, that regular periodic examinations be made by the Insurance Department and that the reports of such examinations be included in the reports of the Superintendent to the Legislature.

THE RETROSPECTIVE RATING PLAN FOR WORKMEN'S COMPENSATION RISKS

SYDNEY D. PINNEY

VOLUME XXIV, PAGE 291

WRITTEN DISCUSSION

MR. H. J. GINSBURGH:

Mr. Pinney's paper is a very comprehensive treatment of a relatively new method of applying an old principle. The Retrospective Rating Plan of which Mr. Pinney writes is a legitimatized form of "stop-loss" coverage (long the object of recrimination, argument, envy and despair from our primary carriers' viewpoint) with the addition of "service" and with rates based at least upon some experience. The foundling has been legally adopted, clothed in seemly raiment, and given a name. This is said in no spirit of criticism, but merely as a statement of fact. There is nothing inherently wrong in adopting weapons of one's opponents. Since the paper is as much an apologia as an exposition, it would be difficult to discuss it without entering into arguments pro and con. These, however, are recorded in great detail in the records of various rate-making organizations and elsewhere. It is therefore perhaps unnecessary to enter into them here.

The Retrospective Rating Plan is a plan of "cost-plus" insurance. Of course this latter term is self-contradictory, as is the term "self-insurance." Insurance should mean the spreading of losses over the entire field of exposure. It is true that the Retrospective Rating Plan does set some limit to those risk losses on which insurance is not operative. This limit is set arbitrarily, but once set the charge for imposing it is based on a distribution of the varying amounts of total losses arising out of different blocks of exposure of the same size. Such distributions suggest the measurement, from experience, of probability of departure from normal loss ratios for risks of various sizes, and then the determination of the credibility of observed departures from normal in connection with equitable distribution of total insurance costs for all risks among the individual risks. Why could not the retrospective idea, foreshadowed in those early discussions which Mr. Pinney has quoted, be applied through the medium of a secondary and retrospective experience rating procedure? The standard Experience Rating Plan could be applied prospectively at the beginning of the policy period to determine the initial or tentative rate. A secondary and much simplified experience rating procedure could then be applied, after the close of the policy period, to the actual experience of the policy under review in order to determine the final rate. Obviously, change in benefit levels and experience levels which must be recognized in prospective rating would not be present to complicate this secondary experience rating procedure. By such a process the credibility of exposure of an individual risk could be given recognition. This briefly made suggestion of a retrospectively applied experience rating procedure, involving the recognition of credibility of experience, is made with the thought that the possibility may not have been thoroughly explored. It would appear to have been in the minds of those whose comments Mr. Pinney quoted at the beginning of his paper.

In his description of the procedure followed in providing for expenses in the Retrospective Rating Plan, Mr. Pinney has not, it seems to me, brought out clearly the fundamental considerations underlying the treatment of various elements of expense provision in the Plan. When he writes "Certain expenses are logically assessed on the basis of the size of the risk, etc.,"—what he might have said more exactly is that such expenses are assessed on the basis of expected losses or probability of loss; for this is the underlying principle. In the Retrospective Rating Plan it would appear that, in general, provision is made for Home Office Administration, Inspection and Audit on the basis of probability of loss or in proportion to expected losses, while provision is made for Claim Adjustment in proportion to actual incurred losses. Both bases should produce the same result, as to total amount realized, over a sufficient period of time for the same risk or over a sufficiently large number of different risks at the same time. Acquisition is treated in an entirely different and arbitrary manner. In justifying the treatment of acquisition expense, recourse is had not only to a conception of the Plan as one of partial self-insurance, but also to an analogy drawn between the Plan and deductible and ex-medical insurance. With respect to the latter, Mr. Pinney writes: "In each instance acquisition cost is not loaded on the losses which are assessed directly against the assured." His discussion of expense provision is then concluded in the next sentence which states, rather broadly and inconsistently after the immediately preceding argument, "The loading for taxes follows the usual procedure of applying such loading to each element of the final risk premium." It can readily be understood that in so comprehensive a review some points may be passed over without complete analysis for the sake of coherent unity. Yet it could be wished that the treatment of expense provisions in the Plan had been analyzed somewhat more deeply so that a consistent pattern might more readily be seen.

The picture of the background of the Retrospective Rating Plan which Mr. Pinney has drawn, and the structure of the Plan itself, indicate that the Plan may most logically be considered from the public viewpoint as one of partial self-insurance. Mr. Pinney has given an excellent presentation of a profoundly interesting development in the field of workmen's compensation insurance as written by the primary carriers.

AUTHOR'S REVIEW OF DISCUSSION

MR. SYDNEY D. PINNEY:

In Mr. Ginsburgh's critical discussion of this paper he somewhat facetiously refers to the Retrospective Rating Plan as the "foundling which has been legally adopted, clothed in seemly raiment, and given a name." Without admitting the validity of such an analogy the observation might be made that the "foundling" in this case is rather unique in that there seems to be no dearth of those claiming parentage. Furthermore, from present indications, it would appear that the infant has been given a promising start in life as measured by developments to date.

According to figures released by the National Council on Compensation Insurance, the New York Rating Board and the Massachusetts Bureau, approximately $4,000,000 of Compensation premiums were written under the Retrospective Rating Plan in 1938. The first tabulated results of the application of the Plan have been distributed by the Massachusetts Bureau, covering retrospective ratings promulgated for the period ending December 31, 1938. A summary of these results is shown below.

MASSACHUSETTS RETROSPECTIVE RATINGS
PROMULGATED THROUGH DECEMBER 31, 1938

Premium Group	No. of Policies	Audited Standard Premium	Retrospective Premium	Ratio (4)÷(3)	Average Modification
(1)	(2)	(3)	(4)	(5)	(6)
Minimum	29	$289,548	$194,135	.670	33.0% Credit
Above Minimum, but less than Standard.	16	487,856	358,881	.736	26.4% "
Above Standard, but less than Maximum	5	55,594	65,119	1.171	17.1% Charge
Maximum	1	29,054	40,530	1.395	39.5% "
Total—All Ratings	51	$862,052	$658,665	.764	23.6% Credit

Subsequent to the writing of the paper, the Plan has been approved for application in California, Michigan and Texas on an intrastate basis, and in Louisiana and New Hampshire on an interstate basis.

It has been suggested by Mr. Ginsburgh that the fundamental considerations underlying the treatment of various elements of expense provision in the Plan might have been more clearly outlined. This criticism deserves consideration since, as pointed out in the paper, the attention of the assured is focused not only on the cost of accidents but also on the underlying expense provisions in the retrospective premium. Of primary importance, the one fundamental which must be kept in mind is that the Plan has been designed principally for individual risks of substantial size. Also of importance is the fundamental that, since the Plan must be available to all insurance carriers, the expense provisions must be established on a basis which will, on the average, meet the requirements of all classes of carriers. A consideration of the practical application of the Plan to the risks for which it was designed indicates that there must be a realistic approach to the matter of expense loading. To simply provide that expenses shall be assessed on the basis of expected losses or probability of loss will not suffice. Even as the Plan seeks to reflect, within the limits of sound underwriting, the individual risk loss experience, so should it also reflect, insofar as possible, the individual risk expense requirements. Bearing in mind the fundamental that the Plan must be made available to all classes of carriers, it is obvious that the provisions for expenses must be established on the basis of average requirements. However, these average requirements should take into consideration the type of risks falling within the scope of the Plan.

The provision for acquisition expense is based directly upon the scale of acquisition allowances to producers established for such risks. Mr. Ginsburgh states that acquisition is treated in an arbitrary manner. The point might well be made that any scale of commissions to agents is arbitrary, although in the final analysis it represents a compromise between what the agent believes his services to be worth and what the assured is willing to pay. Under the Plan acquisition allowance is determined by applying the standard acquisition provision to the minimum retrospective premium. If this basis does not produce an equitable result both from the standpoint of the producer and the assured, it will require future modification. At the outset, however, it appears to meet such requirements and, being thus established, may be incorporated in the determination of the retrospective premium without difficulty.

Claim adjustment expense is more properly related to incurred losses than to any other base. Consequently, in the Plan provision is made for such expense as a percentage of the losses actually incurred by the risk within the minimum and maximum loss limitations.

Other company expenses,—home office administration, inspection and payroll audit,—have, in most instances, been expressed as a fixed percentage of the standard premium, using for this purpose the same percentage as that incorporated in the standard expense loading for the individual state. It is felt that, although such expenses should be expressed as a percentage of the standard premium, consideration should be given to the average requirements by size of risk. In other words, consideration should be given to graduating this percentage downward as the size of the risk increases. Investigation of the incidence of expense has shown that such a gradation is logical and in accord with statistical evidence. As pointed out in the paper, this has been recognized in two states,—Massachusetts and Maine,—and it is felt that further consideration should be given to this feature in other states.

Taxes should be provided for as a percentage of the retrospective premium developed for the risk, in accordance with the tax requirements of the individual state or states involved. Since the retrospective premium is for full coverage of the assured's obligations under the various state Compensation Acts, this basis of providing for taxes is consistent with the customary procedure of tax loading.

It is hoped that this further explanation of the underlying fundamentals will serve to clarify the treatment of the expense provisions, which, as additional results of applying the Plan become available, may be verified as to their adequacy and reasonableness.

The fact that risks written under the Plan are fully covered for their Compensation obligations differentiates it from any plan of "stop-loss" coverage or "partial self-insurance." In other words, as its name implies, the Plan is a method for rating the risk for the purpose of determining premium and does not have any effect upon the scope of coverage afforded to the risk under the standard Compensation insurance policy. This distinction is one which should be understood by all underwriters and explained to any assured who may have a misconception as to the effect of the Plan upon his coverage.

INFORMAL DISCUSSION

Surety Rate-Making—An Approach to the Subject

EDWARD C. LUNT

MR. MARTIN W. LEWIS:*

I am greatly indebted to Mr. Lunt for the paper which he presented here yesterday, as it represents the first serious approach by someone outside of the rating bureau to reduce to writing the problems we confront in surety rate-making.

Surety rate-making is an art and a science, contrary opinions notwithstanding, and that it is so, is due entirely to the vision, the foresight, the courage and determination of its founder, R. H. Towner.

In October, 1909, with a background of "busted" companies, rate manuals that merely served as a guide for a starting point in rate quotations, never incorporating therein the final rate which was ultimately quoted, Mr. Towner alone, but with the support of surety management, built up the organization which now bears his name and made it a useful organization from the standpoint of the buyer, the seller and the companies.

The fact that the Bureau has changed its name and is now company-owned does not mean a complete change in practice, although in order to support its investment and broaden its field of activities, its staff has been greatly increased, and man-power is being developed, so that the future of surety rate-making will be in the hands of those who, by experience, justify such management.

In July, 1914, the first examination of the Towner Rating Bureau was made, and who do you think made it?—your retiring President. I read that report last night and I noted a passage therein, where twenty-four years ago Mr. Senior made the observation that, "at their best, statistics could only be used as a guide." He was right twenty-four years ago and he would be right to-day if he made the same observation.

Surety rate-making is not sectional, for who is there in this room who would venture to maintain before the public, that

* President of the Towner Rating Bureau, Inc. Mr. Lewis spoke on invitation.

honesty is measured by state, county or city lines? Since the hazards we insure in our coverages are primarily hazards of dishonesty, our rates must necessarily be nation-wide and not state-wide. It is equally true in other branches of our business. Our business, unfortunately, does not lend itself to complete standardization. We have standardization wherever practical. In the bankers' and brokers' blanket bond business, the commercial blanket bond business and in the forgery business, we have it; we need it; it is worthwhile. But in many of our branches of business our contracts are not prepared by ourselves but by statute, federal or state, by ordinance, or by the whimsical fancies of public authorities. Hence many of our classifications must necessarily be rated by analogy. If we attempted to rate each different form of contract your largest and most popular dictionary would be small in comparison.

Ours is a young business. When the Bureau was organized in 1909, its total premium volume was approximately $13,000,000. Six years later a new form of coverage was adopted, and to-day the premium volume of bankers' and brokers' blanket bonds alone, exceeds by several millions of dollars the entire premium income of the fidelity and surety business in 1909. Obviously that means progress. It means that surety management and the rating bureau, working hand in hand, have helped to furnish the public the kind and character of protection it needed, and at a price that would induce them to pay more in total premiums than the whole business produced only a few years before.

Surety rate-making, like any other form of rate-making, requires a fair approach to the public and the producer, and a complete understanding with the supervising authorities who administer so ably the laws under which companies operate. It has been my policy, and it will always be my policy, to cooperate fully with public authorities and buyers' organizations in order to bring about a complete understanding of our common problems.

We possess in our business a factor that is not common to insurance, and that is the "unknown loss" factor. We may have losses from day to day and not know about it for years afterwards. Mr. Lunt has very ably set that forth in his paper when he refers to a Chicago bank which, during each of the years when they criticized us, because we would not allow a credit for apparent favorable experience, was actually incurring a loss of one hundred thousand dollars a year. I should like to warn those companies which are new to the business that Towner rates only permit a fair profit; that a new company is at a distinct disadvantage for a number of years because when they issue their bonds they are obliged to take up at the end of a year all the back liability which the previous carrier had. On many of our classes of business that back liability will run from ten to twenty-five years without any additional compensation or without any reserve built up out of this business with which to pay it. To be sure, they will probably use the reserves produced out of other classes of business.

When I was asked by Mr. Senior if I would come here and open this discussion, I told him I would do more; I would stay here and participate in the discussion. Unfortunately a situation has arisen which makes that impossible; I have to leave shortly after I have finished my little informal talk, but I hope that I shall be invited back at some later date to a round-table discussion with those who are really interested in our problem, and I assure you that I will gladly participate in it.

Recently we had an occasion to present our views with respect to our problem. We did not publish them because circumstances were such that it was not advisable to do so. Since they are not generally known, I am going to read them to you and I ask that you bear with me, keeping in mind that this is not something that has already been publicly discussed but rather something which has heretofore been discussed only in private.

The fundamental principle on which all insurance is founded is "distribution of loss." Marine insurance is possible because premiums paid by the ships which reach port safely distribute the losses on those that are wrecked. Fire insurance is possible because premiums paid by the buildings that do not burn pay the losses on the buildings that do burn. The same is true of accident insurance and burglary insurance. All insurance founded on the principle of "distribution of loss" is possible only because losses happen one at a time. One vessel sinks in a storm while scores survive. One house burns to the ground while hundreds are not even afire. Accidents, burglaries and deaths happen one at a time.

Now it may easily be seen that if this principle is reversed, insurance becomes impossible; and that a form of protection which is subject to such reversal lacks the fundamental principle of insurance. If all the ships in the North Atlantic at any given time, or, say in the Mediterranean at any given time, were to perish simultancously in the same storm, marine insurance would be shaken to its foundations and probably would not be written at all—certainly not on its present terms. If all the dwellings or factories or all the school houses insured against fire were suddenly to take fire and burn down simultaneously, fire insurance would cease to be a business. Similarly, if all insured lives were suddenly to perish in a single epidemic, life insurance companies would be wrecked. Every line of insurance is dependent upon the fact that its losses are incurred one at a time. It may be said that fire insurance is at long intervals subject to conflagration loss. But even conflagration losses like that in San Francisco thirty years ago afflict only one city at a time. Conflagrations did not occur simultaneously in San Francisco, Oakland, Los Angeles, San Diego and the other cities of the state.

Surety bonding companies engaged in guaranteeing the obligations of others do not enjoy in their underwriting this wholesome principle of one loss at a time, or even one conflagration at a time, which enables insurance companies to remain solvent and to grow old in a condition of financial health and vigor. Surety bonding companies guaranteeing the obligations of others are subject to epidemics of financial disease. The scourge first afflicts their principals or those on whose continued solvency or financial health these principals depend for their own safety, and when financial disease is severe and widespread it affects all or nearly all the principals of the bonding companies, and next, necessarily, the bonding companies themselves. This was the lesson of 1933 when the Insurance Department had to take over all the companies engaged in guaranteeing mortgage bonds. Some of them had had a successful career of over thirty years. Had they been engaged in fire insurance, a fire might have occurred on one of their insured houses without spreading to the others. But when the disease of real estate depression attacked one of their properties it simultaneously attacked them all. Real estate values tumbled at one and the same time, affecting every mortgage guaranteed by the mortgage bonding companies. As real estate values sickened and died, the solvency of the mortgage bonding companies perished with the destruction of the values on which it depended and every one of them failed.

Surety companies are in like case, and are threatened with the same universal disaster. Their guarantees are based upon the continued solvency of their principals, *plus* the collection of sufficient premiums to safeguard them against their principal's insolvency. But experience shows abundantly that they cannot rely on the insurance principle of one loss at a time. Like mortgage bonding companies, surety bonding companies sometimes see all their principals afflicted simultaneously with the same financial disease. In 1933 there were "bank holidays" covering the *whole* state of Louisiana, the *whole* state of Michigan and finally by proclamation of the newly inaugurated President, the *whole* of the United States. Banks closed not one at a time, but all at a time, in an epidemic of bank failures. What actually occurred in case of real estate values and of bank solvency, may also expose surety companies to loss on construction contract bonds. A rise in construction costs affects all contractors and builders alike. It is not a case where one takes fire while the others do not, but all are affected simultaneously and by the same cause of loss—rising construction costs.

In considering the justice of the premiums of the surety bonding companies one must take into account the difference between their exposure and the exposure of insurance companies. Aside from infrequent conflagrations (which even then sweep only one city) fire insurance companies can rely on fires occurring only one at a time, just as life insurance companies can rely on one death at a time and accident insurance companies on one accident at a time. But the underwriting and the premium rates for surety bonding companies cannot be based upon any such expectation. In their case the fundamental principle of insurance is absent. They know by experience that from time to time they will be exposed to epidemics of financial disease which will seriously affect not only one but all of the principals on whose solvency they rely. That many of these will be simultaneously plunged into financial disaster and will suffer financial insolvency, the equivalent of financial death, and that when this occurs the surety companies themselves will be equally weakened and confronted simultaneously with financial destruction unless they have, during the periods between these epidemics, strengthened themselves with huge financial reserves against the day when they are threatened with this certain disaster. It is the realization of this factor in surety underwriting and premium rate-making that has guided the Towner Rating Bureau in strengthening the surety companies throughout the whole twenty-nine years of its existence. Anyone who takes the view that surety companies should be limited strictly to "an allowable loss ratio" or should be limited during good times to a small "underwriting profit" is in fact preparing for their ultimate destruction. They are not insurors, but guarantors. Unless their financial reserves can be so strengthened in good times that they can withstand the tremendous losses which are certain to be inflicted upon them simultaneously all over the country in bad times, then their fate will be like the fate of the mortgage bonding companies which perished uniformly and simultaneously in a real estate depression. It is as certain as anything known to man that financial depressions occur, affecting the entire country, and every principal upon whose solvency surety companies rely for their own solvency. Such financial depressions compare with conflagrations in a single city (to which fire insurance is occasionally exposed) as the black death which covered Europe in the fourteenth century compares with the scourge of cholera or yellow fever in a single city.

Of course, that doesn't paint a very optimistic picture of our business, but we think it expresses the thought we have in mind that makes our rating probably materially different from that of pure insurance.

A final word should be said about the bonding companies' business of guaranteeing fidelity or honesty on the part of employees. It is true that such guarantees are not like guarantees of financial obligations and that men commonly (not always) steal one at a time, just as accidents, deaths, fires and shipwrecks occur one at a time. In respect of premiums for fidelity bonds, however, there is still a vast distinction between surety bonding and fire insurance. It is the use and custom of fire insurance companies, enforced by the 80% co-insurance clause in their policies, to require the insured to carry an amount of insurance approximately equal to the entire value exposed to fire loss. Under this practice any increase in fire insurance premium rates results in a proportionate increase in premium revenue received by the companies from the same property values. Hence, fire insurance premiums have been described as a "tax" on property.

The case of bonding companies is different. It is very exceptional for bonding companies ever to write an amount of insurance anywhere near equal to the property exposed to theft, and Mr. Lunt, in his talk, cited such a case.

We in the surety business, and particularly in the Rating Bureau, find ourselves constantly confronted with rating problems against which there is no background of experience, and there will be very little after the emergency is completed that can be used for future experience.

For example, the City of Oklahoma found itself possessed of an untold amount of oil, and everybody started drilling for oil. Everyone was afraid of fire, so much so that the fire companies jacked their rates up substantially, sent out their expert engineers to survey the site and they came back with a none too optimistic report. The City of Oklahoma, in order to put oil well drilling in the hands of those financially responsible, passed an ordinance requiring drilling operators to give a bond of $200,000 for each well that they operated, protecting the city and the public against any loss resulting through the drilling of that well. That really made the drilling company a self-insurer as to the fire hazard if it didn't have fire insurance, and the surety company a guarantor of that self-insurer.

When that problem came up to the surety underwriters, many of them were not much interested, but there were a goodly minority who were and we were asked to make a rate. We did, and the fact that six or seven companies took in a substantial volume of premiums over a period of four or five years and had no losses is merely the result of courageous pioneering. The experience that we had in the City of Oklahoma where there were a large number of financially responsible companies drilling at one time, and where the supervision exercised was good, can hardly be used as a complete guide for operations in some smaller city with a different type of operator.

A few years ago the federal government adopted a processing tax, and a large number of the processors disputed the tax. They had the privilege of paying the money in court or retaining the money and putting up a bond guaranteeing to turn the money over in the event the decision of the higher court was in favor of the government. That was an emergency. Overnight demands arose for untold millions of dollars of surety bonds. There, again, we had no prior experience to use as a guide. We never had a demand for bonds of that character before, nor were we ever confronted with a situation where the amount of suretyship required of a single company might run all the way up to $50,000,000. The premiums that were charged therefor and the experience gained can hardly be used for any other proposition except, perhaps, by analogy. And finally, only within the past six or eight weeks, we were asked by Washington to cooperate with them and help them in connection with their cotton loan program. Overnight bonds of a different kind and character, under different circumstances, were required, and we figured that the minimum amount of those bonds required would be $40,000,000. We were asked about it on a Thursday; they needed the rate by Monday because the bonds had to be filed Tuesday. Needless to state, they got what they wanted by way of service.

Ladies and gentlemen, I am happy to have had the privilege of being here. I am glad that the Society has brought up for discussion and brought out into the open the problems of surety rate-making. I have never felt that by keeping things silent or trying to make a mystery out of them any constructive good comes to our business, but I do feel that frank and open discussion—a better understanding of our problems—will help all of us in our efforts to continue the progress which corporate suretyship has made and which I am confident will be theirs in the years to come.

MR. RALPH H. BLANCHARD:

Mr. President, Mr. Lunt's paper is an extremely valuable addition to the *Proceedings* of the Society. It presents a comprehensive statement of the outstanding characteristics of the bonding business, all of which must be considered in any sound scheme of rate-making. And, while the author disclaims intimate knowledge of the manner in which rates are made by the Towner Rating Bureau, I am inclined to believe that his impressions may be accepted as those of an informed commentator, and his text as an authoritative reference.

Mr. Lunt states that ". . . it is completely impracticable and unsafe to forecast future losses on the basis of factors [those present in the bonding business] that are known to be strikingly inconstant"; further, that ". . . insurance underwriters generally . . . know pretty well at all times whether or not they are losing money on a given line of risks, and what their financial position is otherwise. All the foregoing is either not true at all or requires serious modification in the case of most surety lines." These statements suggest that the transaction of surety business is so unsafe that it should not be permitted by the state. In his zeal to convince us that what he believes to be the methods used in making rates for insurance are not applicable to bonding, Mr. Lunt has indicted his own business. I believe the indictment is unduly severe.

I question whether the distinction made between bonding and insurance is of fundamental significance in determining whether the rates for bonds may be in whole or in part determined statistically. That distinction seems to me to have been overstressed. The distinction is very largely theoretical so far as it applies to making rates. Rates which are made for bonds, as for insurance, are based on expected losses and expenses. In the case of the bonding business the final losses may be affected to a very considerable extent by salvage. The only basis for rates in either insurance or suretyship is past experience, statistical or unrecorded. Statistical experience influences rates through mathematical calculation; unrecorded experience through judgment. Rates are usually based on a combination of the two.

Mr. Lunt says that the Towner Rating Bureau, which started work on October 1, 1909, accomplished "the replacement of the earlier guesswork system of independent rate-making with one based upon dependable data" and that ". . . the methods followed by the Bureau . . . are admirably suited to the end in view." He has outlined the conditions obtaining before the Bureau was established. Its organization represented a tremendous advance in the surety business. It made for uniformity of action, relatively, and for relative stability of rates. It contributed more than any other development to placing the surety business on a solvent basis where before it had been largely insolvent. If it had advanced no further in the making of rates it would have rendered a tremendous service to the public.

Five reports on the Bureau have been made by various examiners of the New York Insurance Department and have been issued. Another has been made but has not yet been released. These five reports all stress four points: the inadequacy of the statistics for the making of rates, the influence of competition on the rates, the preponderance of the judgment factor, and the failure of surety companies to observe their own rules and rates. Rates seem to be based on statistics only in a very rudimentary way, judgment and expediency being the controlling factors.

Mr. Lunt says that "It seems clear that classes of bonds upon which few or no losses are likely should be rated in accordance with principles differing from those applied to bonds upon which a considerable loss ratio is expected." He points out that such bonds are rated in accordance with the "service-charge" rate theory which, in turn, seems to be based on "what the traffic will bear." In other words, the rates for certain bonds are based on what the principal can be induced to pay for the bonds. It would seem to be possible to ascertain expenses in connection with bonds written purely as a service, and that the rate should be based on the cost of rendering the service rather than on the value of the service to the principal.

There appear to be maintained statistical records of premiums written and losses incurred by calendar years, based on very broad classes. There seems to have been no attempt to devise a revealing statistical plan for surety bonding. The classes of bonds have not been too carefully worked out, and the experience submitted by the companies is not audited to insure uniform practice in its allocation to classes. Experience submitted by companies is unreliable unless audited. And Mr. Lunt tells us that it is impossible accurately to calculate incurred losses in the bonding business.

I find no evidence of any attempt to work out a sound statistical plan for the bonding business, nor to investigate the possibilities of rating based in whole or in part on accurate and indicative statistics. Bonding experts seem to be convinced that it cannot be done.

The Insurance Department has made certain suggestions, from time to time, which I offer without comment:

1. That the Bureau should compile adequate experience, based on a better classification system and on a careful audit of returns made by carriers.
2. That pure premiums insofar as possible should be based on that experience.
3. That uniform rules should be developed and applied uniformly.
4. That competitive rate-making should be eliminated.

Mr. Lunt seems to assume that insurance actuaries have only to examine tabulations of experience, perform a few mathematical processes, and produce rates. I do not need to suggest to this group that this assumption is hardly accurate.

People in any one line of business or any one profession tend to over-simplify the problems of those in other lines, and also to assume that the accomplishments of those in other lines are greater than they actually are. Take the following statement, for instance: "If the principles of rate-making used in most insurance lines had been applied to depository bonds in the early 1920's, say, a reduction from the rate stated would clearly have been in order, because experience tables over a long term of years would have shown loss ratios ranging from 5% or so to 20% or so, and an average, it is thought, of not more than 10%." The statement assumes an automatic relationship between experience and rates in insurance which does not exist, even in the life insurance business. The indications of experience are everywhere tempered by judgment.

At one point Mr. Lunt says, "As respects insurance . . . alternations of prosperity and reverses are reflected primarily in premium volume . . ." rather than in loss ratios. May I suggest that he study the loss-ratio chart which has, previous to 1938, been published in the annual *Proceedings* of the National Board of Fire Underwriters. The experience in disability insurance during the depression would also be illuminating.

Section 19 is headed "Surety Experience Data Sometimes Absent." Insurance experience data are often absent. Let me cite a few illustrative cases: aviation insurance, workmen's compensation insurance in 1911, compulsory automobile liability insurance in Massachusetts in 1927, occupational-disease coverage, and war risk insurance. Examples might be multiplied.

It is suggested that insurance underwriters may accept and reject risks as they please, while "selection is always . . . against the surety." Illustrations to the contrary may be found in "accommodation risks," assigned compensation risks, compulsory acceptance of risks for automobile insurance in Massachusetts, and in general in the pressure of agents and brokers on underwriters who are not free to exercise their judgment as they choose.

An insurance rate-maker must consider a great deal more than Mr. Lunt assumes. He has certain statistical raw material: losses, incurred or paid; expenses, incurred or paid; exposure; premiums, written or earned; and data on probable differences in past and future conditions; all varying greatly in quantity and quality from one line of insurance to another. The insurance rate-maker's job is that of using statistics and judgment, modified by pressure.

I think that Mr. Lunt may be something of a Machiavelli, for it seems to me that he would welcome a greater degree of statistical rate-making in the bonding business. He refers frequently to experience on various classes of bonds, indicating whether they are profitable or unprofitable. Only statistical evidence would enable him to make these comments, and if there is such experience why not use it for rate-making?

Fidelity bonds, which account for "about forty-eight per cent" of the premiums in the bonding business, "for rate-making purposes" are "a good deal like insurance," but there are three factors "included in the premium and loss statistics either not at all or only imperfectly": (1) "certain costs incident to the preliminary examination of the risk," (2) the "fact that surety losses are slow in arriving," (3) salvage probabilities. It is impossible to say to what degree it would be possible accurately to take account of these three items, but a careful statistical approach to the problem might reveal practical possibilities. In bankers' and brokers' blanket bonds, which account for "about twenty per cent" of the premiums (contributing, with fidelity bonds, sixty-eight per cent), the risks involved are "largely insurance hazards." "The service-charge theory of rate-making, . . . while applicable somewhat to fiduciary bonds, seems not quite to serve the purpose; . . . it seems necessary to adopt in part insurance methods of rate-making." "These comments regarding fiduciary bonds apply as well to public official risks and to many miscellaneous surety lines; that is, rates are determined more by the experience in the given line than by any other single factor." These conclusions are stated in spite of the differences between insurance and suretyship.

Rate-making, on the basis of statistical experience seems to me to be applicable to bonding to a markedly greater extent than it is now used. But here, as in insurance, it would still be necessary to have underwriters, because somebody would have chose the risks to which the rates would be applied.

While the method would unquestionably be different, the principles would be precisely the same as in insurance. The biggest problem is that of devising and conscientiously applying a sound statistical plan. It has not yet been tried, and the statement that it cannot be done is pure theory.

Estimates of outstandings would be extremely difficult to make, but when one considers the accuracy of the estimates of outstandings in liability insurance where estimates in particular cases are often highly inaccurate, there would seem to be some hope for reasonably accurate calculation of incurred losses on bonding business.

From Mr. Lunt's paper, it would appear that fidelity bonds and bankers' and brokers' blanket bonds, which contribute sixty-eight per cent of the premiums, could be put on a statistical rate-making basis as it is known in insurance (a very lame basis at times), and that the experience would be indicative if it were accumulated. The bonding companies are working on experience even if they are not conscious of it, and it would be better to accumulate statistical experience even though it might not be useful to the same degree as in some lines of insurance.

MR. CHARLES V. R. MARSH:

Mr. Lunt's most valuable and instructive paper on the intricate subject of "Surety Rate Making" is worthy of much more extensive study than the writer has had time to devote to it.

However, a brief review of his observations has resulted in bringing out the following thoughts which may be of interest in studying the problem of what constitutes dependable bonding experience and how it shall be used to develop the correct rates.

The subject of scientific rate-making for the bonding lines has been one over which actuaries and statisticians have no doubt uttered many sighs and in fact, after reading Mr. Lunt's paper, such an approach to it would seem justified in view of the lack of similarity in the various circumstances which have been responsible for a great many bonding losses in the past.

When we speak of a fidelity bond, we think of it as being a negative obligation guaranteeing that the principal covered will not do certain things, as, for instance, that an employee will not steal from his employer, a public official or fiduciary will not misappropriate funds entrusted to him. We regard a surety bond as a positive obligation guaranteeing that the principal will do a stated thing, as, for instance, that a contractor will perform his contract in accordance with the plans and specifications and will pay labor and material bills incurred; that an administrator, guardian, or trustee will faithfully administer an estate or trust in accordance with the law; that a bank depository will turn over a deposit to the owner on demand when due; that a public official will faithfully administer his office in accordance with the law, etc. Still, as mentioned by Mr. Lunt, certain bonds will often contain these two elements of the bonding risk, as in the case of a public official or fiduciary mentioned above, so that it is seemingly impossible in a great many instances correctly to classify a bond as being either a Fidelity or a Surety obligation for rate-making or other purposes.

The lack of uniformity found in thus endeavoring to classify the bonding lines as either fidelity or surety affects the rate structure, as the units of exposure available for the basis of rates vary to such an extent that no fundamental unit can be found applicable to all in the way that the car is used as the unit of exposure in the automobile lines.

It is true the highest loss ratios will generally be incurred on the fidelity classifications which are underwritten more particularly on the honesty, character and reputation of the principal rather than his financial responsibility and on which collateral or other outside security is not usually taken; whereas the loss ratio on most of the surety lines will be lower due to the fact that they are usually underwritten on a credit-service basis with collateral, joint or sole control of assets or third-party indemnity secured where the principal's financial resources alone do not justify the assumption of the particular risk.

In connection with Mr. Lunt's statement in the matter of salvage on bonding losses that over a period of fifteen years an average ratio of such recoveries against losses paid amounted to 23.6%, varying from a low of 17.2% in 1931 to a high of 37.5% in 1927, which figures covered losses on all classes of bonds, it might be interesting to note that in case of one company which writes a substantial portion of the bonding lines that over a period of the past seventeen years and ten months, the fidelity losses showed an average salvage recovery of 16.6%, Public Official 16.5%, Depository 47.1%, Contract 25.8%, Judicial, including Fiduciary 25.4% and Total Bonding 24.1%.

Mr. Lunt refers to surety rates in the sense of a service charge. The State Corporation Commission of Virginia also recognizes that it is appropriate to load certain surety premiums because of additional services necessary to be performed by the surety beyond the mere contractual obligation of the surety. This loading is essential in connection with public official, fiduciary and judicial business where costs of inspection service must also be considered.

While bonding classification statistics are prepared by each company and submitted to the Towner Bureau where they are collated so that such combined classification experience of all companies may be available, the extent to which these statistics may be used as a guide to rates is no doubt limited. Underwriters' judgment, local law requirements and conditions must enter into the picture to a considerable extent. In any event, at least five years of classification experiences are necessary in the bonding lines in order to cover latent losses and even ten years or longer will prove more dependable in order to include variations due to business cycles.

As Mr. Lunt correctly states, new types of bonds which are constantly being required especially by the Government have no reference to any basis which statistics are able to supply and such bonds can probably only be rated on the basis of the personal judgment of underwriters. However, in my opinion, this fact does not justify the failure to build up dependable statistics as rapidly as possible to be used as a general guide in rating such similar new obligations as may be required from time to time.

It will also be well to remember that while rates for insurance are based on the average risk for a group as a whole, bonding rates generally are expected to cover only certain risks of their class because surety underwriting contemplates giving bonds only for such principals as can be depended upon to carry out their obligations. Hence, bonding rates can not be based on the average of all risks of a given group as is the case with lines in which pure insurance risks are involved.

Mr. Lunt speaks of the advisability of rates being adequate to cover not only a fair profit but also to permit carriers to accumulate a surplus against contingencies unforseen but certain to arise in course of time. This thought coincides with the ideas of the writer and Mr. Mills and those expressed by Mr. W. W. Greene in his valuable paper on the subject of "Reserves Against the Recurrence of an Unfavorable Loss Ratio in the Bonding Lines" (*Proceedings,* Vol. XXIII, 1936-1937, pp. 270-272),

> "The greatest factor in the variability of the bond result is the surety loss ratio, which fluctuated between extremes represented by 90.6% for 1932 and 21.4% for 1936.
>
> "Fidelity, although more stable than surety, is still a contributor to instability, since, though the fidelity business does not occasion the terrific underwriting losses characteristic of surety, its profits nevertheless disappear just at the time when they are most needed.
>
> "Clearly the situation calls for a reserve method which will tend to equalize loss ratios from year to year to a considerable degree, regardless of the precise incidence of loss discovery or even of loss causation; and for this purpose mere coverage of what has happened, known or unknown, will not be adequate. To a great extent the emergence of losses is actuated by the business cycle: and without proposing a specific formula, if we do not impound a substantial portion of the apparent profits of to-day, we shall have naught (but the surplus ac-

> count, if that can stand it) wherewith to liquidate the losses of to-morrow.
>
> "A life insurance company collects a yearly premium commensurate with the mean mortality rate for a man's entire lifetime; but it does not deem it has profited because its losses are low as compared to this level premium during the earlier years of life. Instead, it puts the apparent saving into policy reserve, knowing this fund will be needed to liquidate the heavier mortality bound to occur at the higher ages. On surety and fidelity business, the companies should be permitted to follow a similar course. Presumably the specific procedure would bear a close resemblance to that of Schedule 'P' for liability business, though the percentage of premiums impounded might on the average be less for the bonding business and the period of impoundment greater, at least for fidelity. It might be desirable to have the percentages impounded reflect the experience of the individual company provided the company has been in the bonding business for a considerable period."

The writer also stated in a previous discussion of the subject that due to the peculiarities and dependence of the bonding business on changing economic conditions, to a large extent, we seem to have moved in cycles of about five years of good, fair and bad periods, and hence, the provision for a special contingent loss reserve in good periods to take care of the excessive losses in bad periods would seem to be the logical procedure and thus enure to the benefit of the companies from a rating standpoint as well.

While the incurred but not reported special loss reserve for the bonding lines required by the various State Insurance and U. S. Treasury Departments mentioned by Mr. Lunt, must be maintained by all carriers on at least the minimum basis, (10% of fidelity and 3½% of surety premiums in force), it must be borne in mind that this reserve does not constitute a current safety loss reserve in the sense that it is available for use by a going concern, since its purpose is purely to build up and maintain a fund out of which, in the event of a company liquidating its business for any reason, policyholders may be reasonably assured of payment of such bonding losses as may be undiscovered until some time after the carrier's premium income has ceased.

I am sure we are all greatly indebted to Mr. Lunt for his most helpful and enlightening paper and look forward to additional valuable material being presented at a later date after sufficient time has elapsed to allow a full study of the subject by all interested members.

MR. FRANCIS S. PERRYMAN:

As a basis for this informal discussion we have Mr. Lunt's very interesting and illuminating paper. Nevertheless, I take it that the object of this informal discussion is to talk about the principles of surety rate-making as contrasted with casualty rate-making and not to criticize Mr. Lunt's paper in detail. Such detailed criticism should find its place in a formal discussion. Nevertheless, I wish to make a few general comments on the paper. First of all, it seems to me that Mr. Lunt's statements regarding other branches of insurance and particularly regarding the rate-making for those other branches are in many cases not technically correct; they may convey to the layman the general idea and possibly this was Mr. Lunt's sole aim. Mr. Lunt's indictment of casualty rate-making based on the experience of casualty lines for the years 1927 to 1937 is perhaps rather severe. While the casualty lines showed a loss for this period of about $41,000,000, this was only about 7% of the premiums. During the same period, the bonding lines showed a loss of about $28,000,000, which was well over 30% of the premiums for the period. Mr. Lunt would doubtless hold that the theory of surety rate-making anticipates large losses during unfavorable economic periods, such as was the eleven years in question. He would probably maintain that the loss of these years has, under a proper theory of surety rate-making, to be spread over the preceding more prosperous years. Undoubtedly, Mr. Lunt is right as regards the surety business but he must not overlook the fact that something of a similar nature, although not to the same degree, is likely to occur in the general casualty business, which also is intimately connected with general economic conditions. This reminds me that it is rather interesting to note that the casualty line which produced the largest loss during the depression, namely, workmen's compensation, has since adopted a theory of rate-making somewhat similar to the cyclic theory advocated for surety. The contingency factor now included in the rates should operate to spread some of the increased losses in the bad years of the cycle over the better years.

I will not wander from the subject under discussion by taking time to correct Mr. Lunt's apparent misconceptions regarding the methods of making rates on casualty business and life business. I do wish, however, that he were right in his belief that supervising authorities expect to find and are content to accept a fair margin of profit in all casualty rates.

No one will quarrel with Mr. Lunt's belief that surety should be regarded as being different from casualty insurance. It is and the difference varies all the way from not much in certain kinds of fidelity and blanket bond business, which are very akin to ordinary casualty business, to a great deal in certain types of surety bonds such as appeal bonds, which are practically nothing more than service contracts. I had hoped, however, when I started to read Mr. Lunt's paper, that it would enlighten me as to the *methods* of surety rate-making. However, the paper turns out to be, and acknowledges that it is merely, a preliminary paper with a very comprehensive description of the various kinds of suretyship and rather belabored arguments as to the special character of bonding insurance, which special character, as previously stated, I am prepared to admit. I am hopeful that Mr. Lunt or some other surety expert will follow up the present paper by giving us a more detailed description of how surety rates are actually made.

I do think that surety men are inclined to insist too much upon the peculiar characteristics of their bonding business. There are lots of other kinds of insurance that are quite peculiar and for which different rating principles have to be evoked; or rather, for which the same general principles of insurance have to be adapted and applied to the peculiar conditions of different types of insurance. I say "the same general principles of insurance" because while I regard suretyship as being different I still regard it as being insurance, taking the view that the essence of suretyship is the spreading or averaging of certain untoward financial features of certain events which it is known will inevitably take place somewhere and somewhen even though where and when is not known. Suretyship meets this criterion and, like many other kinds of insurance, provides the service of averaging plus other necessary services and efforts directed towards preventing, or at least minimizing the occurrence of the events insured against.

Messrs. Blanchard and Moore in their paper on corporate bonding, Volume VII of the *Proceedings* take the same view as to bonding being insurance. As might be expected, this was quite strenuously objected to by a surety man, Mr. Sexton, in his review of the paper. I think there is a danger in wasting too much energy and time in trying to decide whether bonding is insurance or not, as after all, the determination of this not too vital question depends upon the definition of insurance you are using.

Now, let me set out briefly some thoughts bearing on the subject under discussion, namely, the peculiarities of surety rate-making:

(1) If bonding business is a service business only, rate-making should be simple, consisting of the determination of the appropriate service charged. Actually, of course, there is in all bonds some element of loss hazard and some part of the premium must be earmarked for such loss.

(2) The word "service" actually covers a multitude of things, more than is usually meant. Service includes not only the providing and filing of the bond and the lending of the surety's name and guarantee to the transaction but also includes the investigation and settlement of claims, recovery of money, securities, etc., and also includes the advancing of monies to be covered over a period of years. For example, under depository bonds, many losses are ultimately practically entirely recovered but the recovery is spread over a considerable time.

(3) Other lines of insurance also include large elements of service. One of the most familiar is the boiler and machinery business. In its original form, boiler insurance set out to eliminate losses and to be practically a service contract only, and even to-day the loss obligation is not the most important feature of the contract. All deductible lines include a considerable element of service, as also does one of the latest forms of Casualty insurance, namely, retrospective rating.

(4) Conditions in this country have fostered corporate suretyship and similarly have called for a strong bureau, one that can control companies and one that can overcome efforts to subordinate it to prejudicial or inexperienced rate supervision. Some of the applicable rating laws are unreasonable as regards suretyship. A surety rating bureau has at least three functions to fulfil:

(a) to make rates,
(b) to sell them to the public and supervising authorities,
(c) to save the companies from themselves through the elimination of senseless competition by the exercise of a collective underwriting judgment.

(5) Despite its (admitted) difference from other forms of insurance suretyship must make its rates according to some principles. In most of the not very extensive writings on this subject attention is strongly directed to the necessity of paying heed to proper underwriting of risks so as to have a strong first line of defense against losses, namely the resources of the principal, and to the necessity of regarding the whole of what may be a very long cycle so as to build up an adequate premium fund to take care of the lean years. I have not been very successful, however, in finding many hints as to how such considerations are to be translated into rates. No doubt it is more than a matter of mere arithmetic—of just dividing losses by expenses and loading for expenses—and much more judgment has to be exercised than in the case of some casualty lines. Nevertheless, there must be some criteria and some tests that can be applied to surety rates, at least retrospectively. For instance, would a reasonable supervising authority allow, or a surety ratemaker contend that a surety rate schedule was satisfactory if over a long term of years it produced an ultimate loss ratio of 10% and an expense ratio of 40%; or would the ratemaker be satisfied if the loss and the expense ratios were each 75%? The answer is, of course, no in both cases and so it seems that *one* principle must be that the rates must be adequate and reasonable.

(6) There is a certain amount of information available as to loss ratio—not only over the whole surety business but also by various subdivisions or classes. However, there isn't much available regarding expenses. The casualty experience exhibit, of course, gives expense ratios for "fidelity" and "surety" but the allocation of these expenses to the various classes is something regarding which there is no published data and I am not so sure but what any private information on this that the surety ratemakers may have is not based rather on their judgment than on any investigations. This would seem to be a subject of importance for the "service" necessary on various types of bonds can easily vary enormously. True, certain expenses such as commissions and taxes are simple percentages of the premiums but the others, claim expenses and general underwriting expense must be quite different for different kinds of bonds. I would welcome enlightenment on this point.

I am conscious that my contribution to this discussion is rather negative. I have asked a lot of questions and raised a lot of points but haven't given much information. This is, of course, because I am not a surety rate-making expert and am looking for information. I have tried, however, to put my questions and doubts in such a way as to elicit replies that will be helpful to other surety non-experts as well as to myself.

MR. PAUL DORWEILER:

From such fragments of information as I have been able to receive about surety rate-making I am inclined to believe that we have placed too much emphasis on the differences from casualty insurance rate-making for we must bear in mind when we are discussing this problem that we are not comparing a definite method of making rates for a group of homogeneous bonds on the one side with a method followed or based on the principle developed by casualty actuaries for a number of homogeneous lines of casualty insurance on the other. The problem is not that simple. We have a large variety of methods, if I understand the basis that is being used at the present time for making rates for various types of bonds. They differ widely from public official bonds to contract bonds for instance. There, too, is a big difference in methods between making rates for compensation insurance and those followed for making rates for less developed lines —as product liability or contractual liability.

Yet in spite of all these differences I think there are certain similarities when we get back to fundaméntals; whether it be the method for suretyship or the method based on the principles underlying casualty insurance, the objective is the same—to collect a fund (known as premium) which is going to suffice to pay for servicing the risk and indemnifying the loss.

The difference between the amount that is devoted to service rendered and to indemnification of the loss that is insured varies largely within each of the groups and also between the two groups.

The question arises if we have these variations within each of these groups whether a statement can be made which satisfactorily typifies or characterizes the method of making rates for suretyship on the one hand and the method of making rates for casualty insurance on the other; or whether the question as stated here implies that this can be done, and I have endeavored to do so.

I think the most general way in which you can distinguish the methods is to say that, in suretyship, the emphasis is placed on the whole, giving lesser attention to the details, whereas in casualty insurance the details are emphasized as well as the whole. I have attempted to state this more specifically as follows: the method underlying suretyship rate-making places the emphasis on collecting an ample premium fund over all and is less concerned with the exact division between what is needed for service and for indemnification. It attempts to get ample funds for each type of bonds but is less concerned with the adequacy of the amount secured for each classification. It attempts to get ample funds over a long period, duly recognizing that provision for losses of an unusual order must be included, and is less concerned about getting the correct amount for each year of the period.

Then over and above all this the suretyship expert, recognizing the dire consequences from failure of a carrier, wishes to get an amount to provide amply for any emergency that might arise.

On the other hand, the method that is used for making rates for casualty insurance I have attempted to summarize somewhat like this: The method based on the principles developed by the casualty actuaries and followed wherever their recommendations are accepted has the same objective as to adequacy of rates over all. It attempts to differentiate more exactly the amount needed for service and for losses, for each state, for each policy year, and for each classification. It recognizes, too, that there are losses of a super order, or of catastrophic nature, which should be spread over all classifications through a special loading in the rate. It attempts to provide for the adequacy of premiums to enable carriers to meet all emergencies through a special contingency loading aimed to build a cushion available for unusual losses which, at its maximum, is to be approximately 2½% of the average annual premium income. This is the method that has been developed for compensation insurance; it is there developed in the highest form.

The difference between these two methods arises partly out of causes which, I think, one may trace back to the elements which enter into the rate-making method. Some of these elements are: nature of the event or the nature of the happening which under-lies the insurance; and the exposure medium, or the premium basis that is used.

When we apply the theory of probability to statistical data we assume that these data are independent; that is, we assume that they are due to causes which are unrelated, or at least not known to be related. The events underlying any type of insurance are not, of course, independent, and they are less so in casualty insurance, and suretyship than in other forms. In some kinds of insurance, as, compensation and employers' liability, and in some types of suretyship, the frequency of occurrence of the event which is insured against varies and is affected by the ups and downs of the business cycle. These changes, while significant in casualty insurance, yet are limited in the extent of their variations. For example, in compensation insurance, excluding the occupational disease portion of it, if we had an increase of 50% in the accident frequency, or in the losses of one year over the average of a period of years, that would be remarkable and cause considerable discussion. In suretyship, however, in adverse years we might have an increase that is many times the average over the period, and this would receive little attention. This is the reason why in suretyship a long period of experience is desirable.

When we select an exposure medium for measuring the hazards of risks, we attempt to get one in which the magnitude of the premium varies with the hazards of the risk. If this combination is approximately obtained then we can have a flat premium rate. If it is not approximately obtained, it is necessary to have a variable premium rate. In fidelity bonds the premium basis may be generally described as a fixed amount, for a bond for an individual for a fixed period, say one year. If I put this more concretely it might be a $1,000 bond for one person for one year, and the rate is a charge for each $1,000 in the amount of the bond. It might well be questioned whether a $2,000 bond has twice the hazard that a $1,000 bond has. If we want to analyze this carefully I think we could show that from a theoretical point of view at least, this is not so. I do not want this to be construed as criticizing the premium basis. If we do not use this (flat rate) it will be necessary to suggest what the degree of variation should be. In some kinds of bonds, however, the variation is recognized and there is a variable base rate, or sliding rate. The reason I am bringing this out is to point out that if we have a premium base by which we cannot measure the hazard of the individual risks somewhat exactly, there is little object in trying to get a pure premium that is very exact.

There is another difference in the rate-making in the way the manual rate is being treated. In casualty insurance we have a manual rate and then try to modify this in accordance with the hazard of the risk for which the rate is being made. If I understand what they are doing in suretyship they keep the rate the same, but try to modify the conditions, or the hazards, so as to make them fit the rate. Either way, of course, is equitable if it can be done.

It seems to me that the general merit of the method used by the suretyship experts, assuming that it is substantially as I have understood it, is its simplicity and its practicality—it has worked. One reason why it has been able to maintain its simplicity is that costs are relatively low and the lines are not so directly a concern of the public; at least not so directly do they touch the public as compensation and automobile liability. When costs are relatively low there is little need for an explanation either from the viewpoint of the buyer of insurance or the public. It is in such lines as compensation and automobile liability, where the rates are high, that the demand arises for detailed explanations, as a result of which it is necessary to set up methods of rate-making which emphasizes these details.

MR. PAUL MOLNAR:*

I will merely make a few observations, and one is that the department is constantly interested in improving rating formulae and methods, and we have achieved a certain degree of success in that direction with the excellent cooperation of some of the rate-making bureaus. We can't make that statement broader as yet because we are still looking for progress from some quarters.

This discussion has been very timely because it so happens that we are studying the general subject of rating formulae and rating methods for the surety and fidelity business. To say that it is impossible to establish some concrete formula or basis of rating

* Of the New York Insurance Department. Mr. Molnar spoke on invitation.

that is susceptible to being tied up with past experience is to take a defeatist attitude, and if the general tenor of the excellent paper that Mr. Lunt prepared were to be followed to its natural conclusion then actuaries would be purged from the fidelity and surety rate-making field, and I am sure this Society would not approve of that.

It has been said that suretyship is not insurance; as a matter of fact it is more akin to banking. We will not quarrel with definitions, but we must not lose sight of the fact that even in banking there are elements of insurance. When a banking institution makes a loan it must compute the basis of the loan in such a manner that provision will be made for bad accounts. Similarly, while suretyship is not exactly akin to insurance, certainly it can safely be said that suretyship contains many elements that are comparable to insurance, and these elements we feel can be evaluated in the light of past experience, taking into account of course some of the peculiarities that are inherent in the surety and fidelity business.

Great stress has been placed upon the uniqueness of many forms of fidelity and surety coverages. We claim that some of the contracts issued by surety companies are "tailor-made" to fit a given condition, but we have provisions for similar situations in the casualty field where certain contracts of insurance must be "tailor-made" to fit a given peculiar situation and provision is made in the department for accepting so-called "air" rates to take care of these unique casualty contracts.

I am glad that Mr. Lunt did not stop with the analysis of the various coverages and say that it is impossible to go any further, and we hope that the members of the Casualty Actuarial Society will "take up the gauntlet" and continue the study of scientific rate-making for the fidelity and surety lines and in that way make a further contribution to the insurance business along the lines that Superintendent Pink mentioned last night.

MR. HAROLD J. GINSBURGH:

It seems to me that this meeting of the Society, with the discussion this morning and the paper given by Mr. Lunt may well become a landmark in the surety business. It may be the beginning of the tearing apart of the veil that has been hiding from all except the few initiates the mystery of surety rate-making.

Everybody who has talked here this morning has said, "I talk from the viewpoint not of one who knows, but from the point of view of one who is raising questions." Let's get somebody here who can tell us just how surety rates have been made.

One thing came to my mind this morning, particularly after Mr. Dorweiler had talked: How can surety companies conduct their managements efficiently if they have no basis, you might say, for budgeting their business? If they don't know how much of the money taken in is to be allowed for a certain type of expenditure, how do they know that they are keeping their expenditures within bounds?

If it is true that the bonding business is one whose results must be judged over a long period of time, it seems to me that it is even more necessary for those engaged in it to know upon what basis, with regard to provision for expense and loss, their income is made up. Without such a basis, how can they know if they are spending too much on any one phase of the business in one year—putting too much into service, for example? Even when it is presumed that there is very little of the indemnity loss hazard in the contract and the rate is made almost entirely on a service charge basis, it does seem that it is desirable to know what is available for this purpose.

These are questions which have arisen in my mind this morning and lead me to underline most emphatically the suggestions and requests made by those who have talked. Let us make a beginning; let us get somebody here to tell us how surety rates are made. It seems to me that if there is to be any more formalized method of making surety rates (I merely say at this moment "a more formalized method") we ought to know how rates are made now before we suggest new methods. Let us find out what the story is now before suggesting changes for the future.

And as to the comments made about competitive rate-making by Mr. Blanchard, and in reply to Mr. Lewis, I would say that "ignorance usually breeds suspicion."

HON. CHARLES F. J. HARRINGTON :*

I came to this meeting to listen, not to expound. Whatever I say may be taken as the unofficial statements of one speaking from the standpoint of his own experience in the business.

Next year marks the twenty-fifth anniversary of two momentous events; the one of great consequence to the insurance business, the founding of this Society; the other of great consequence from my own standpoint, my entry into the insurance business. In 1914 I entered the employment of an insurance company. Discovering at an early date the limitations of opportunity in that sphere, I sought a more fertile field, namely insurance salesmanship.

I would like to leave with this meeting one thought derived from my experience. Company underwriters and actuaries are charged with a great responsibility in the making of rates and in the development of scientific principles of rate-making. On the other hand, there are the producers, the general agents and brokers who have built up great organizations for serving the public, and who, in the sale of insurance are making constant public contacts. They know the public sentiment; they know the sort of insurance service the public needs. It might be that if these men were consulted and given opportunity to express their ideas before such gatherings as this, much might be obtained which would form a valuable supplement to the ideas of learned technicians.

It is not to be expected that the public will ever be thoroughly satisfied with insurance rates and rating procedure. The average person has but little time to devote to the subject, and to lend himself to the arduous labor of following through the reasons for the various formulas and theories which are involved in rate-making. Their natural resort is to their agent or broker or to the Insurance Department.

The Insurance Department would very much prefer that rate-making problems be settled by the companies themselves. Some of its jurisdiction over these matters has not been sought but has in a way been forced upon it, and to some degree by the companies themselves. Much complaint is made to-day about cer-

* Commissioner of Insurance of Massachusetts. Commissioner Harrington spoke on invitation.

tain legislative ideas which have recently been put into force in the federal field. Some part of these ideas originated from the fact that business was in trouble and rushed to Washington seeking help. Washington in granting help found itself obliged to supplement its help with safeguards, and it is the safeguards which are criticized by and which are distasteful to the very persons who sought assistance.

Similarly, the insurance companies have from time to time come to the Insurance Departments for assistance in controlling acquisition cost but the companies do not wish Insurance Departments to control their other expenses. Yet, once the departments enter into the matter of regulating problems of expense there is no logical point at which they should stop. They cannot assume responsibility for a part without undertaking responsibility for the whole. My own idea is that those in the business should adjust their own internal problems. Supervisory authorities should supervise the business along somewhat limited lines, laid down by the legislature, and use some discretionary power to correct evils. That is preferable to the enactment of legislation which "puts the business into a strait-jacket."

These few remarks may not be strictly pertinent to the subject under discussion, but the producer has a distinct interest in the matter of surety rates. He must accept all decisions of the rate-makers, and has no legal right to intervene. He is, however, of consequence in the business, and his interest should be fairly and sincerely taken into account by those who make rates.

REVIEWS OF PUBLICATIONS

CLARENCE A. KULP, BOOK REVIEW EDITOR

Automobile Guest Law, Statutes and Decisions. M. Vartan Malcolm. Callaghan and Company, Chicago, 1937. Pp. xiv, 388.

The guest law statutes have been enacted with a design to curb and control a pernicious and often semi-collusive type of liability action brought on account of a person present as a guest in the automobile of a person carrying liability insurance. The purpose of the statutes is to protect honest guest claimants on the one hand and on the other to prevent thievery on the part of fraudulent claimants, and in some degree to bring down the enormous cost entailed by such claims.

This book is devoted to a study of the acts passed and of the decisions in cases in which the acts are involved. It ought to be a valuable book for the use of lawyers trying automobile liability cases; it is in addition interesting to those engaged in the insurance of automobiles against the liability hazard. How much the guest statutes will avail to diminish insurance costs is more or less speculative, but undoubtedly insurance concerns regard the enactment of such laws as a step in the right direction.

The book contains the text of the acts enacted up to the time the book went to press. It cites a goodly number of cases and has a fine index. It is one which will doubtless require to be re-edited from time to time as it deals with a branch of legislation of rather recent origin which will probably be extended and modified in the future and which will probably enter more and more frequently into litigation.

CLARENCE W. HOBBS.

Group Purchase of Medical Care by Industrial Employees. Leahmae Brown. Industrial Relations Section, Princeton University, 1938. Pp. 53.

The scope of this report is indicated by the four chapter headings as follows:

I. The Problem of Medical Care
II. Developments in General Medical Care within Industry

III. Attitude of Organized Medicine toward Group Purchase Plans

IV. Representative Plans for Group Purchase of Medical Care by Industrial Employees

Need for the group purchase of medical care is indicated in a foreward by J. Douglas Brown, Director of the Industrial Relations Section, in which we find the significant statement:

> As a profession, medical practice has made great strides. As a social service, medical practice has been hampered by a widespread and stubborn survival of the traditions of individual business enterprise at a time when most other professions have enhanced their service to the community through a large degree of integration with public and private institutions and corporations. Despite the fine professional spirit of thousands of physicians in providing free care to the indigent, the mechanism of the individual business enterpriser in distributing medical service has failed to keep up with social needs.

The report points out that the lowest income groups receive the least medical service, although in these groups the frequency and severity of illness are greatest. In fact, the report states that

> The controlling factor in the distribution of facilities for medical care and the amount of medical service received is the ability of patients to pay, rather than their need for such services.

The success of a group method of providing medical care is based on the observation that

> The great majority of wage earners would be able to pay the average cost of medical care, but they cannot make provision for the unforeseen costs of sickness.

The recommendations of the Committee on the Costs of Medical Care, organized in 1927, are stated and a minority report opposing contract practice summarized.

Developments in medical care in industry are discussed somewhat generally and six representative plans for the group purchase of medical care are described in considerable detail. Running all through the report is evidence of opposition on the part of organized medicine to everything in the nature of group or collective medical attention. The tactics used by organized medicine to punish physicians who have participated in group medicine, to intimidate others who have planned to participate and to "make it as difficult as possible for the [Health] Association to enlist the cooperation of hospitals" are emphasized in the report. Evidences of conservatism and self-interest are obvious in this opposition. In this regard the following observation is pertinent:

> The opposition of organized medicine to changes in the method of securing and paying for medical care may be explained in part as the reaction of a conservative and individualistic profession to proposed changes in its method of work.

RAINARD B. ROBBINS.

Gross Negligence with Automobiles. Frank G. Turner. Turner Publishing Company, Miami, Florida, 1938. Pp. 535.

The purpose of this book is to enable the trial lawyer and brief writer to obtain decisions rapidly on the subject of gross negligence with automobiles. The cases cited should be useful to employees of insurance companies. In order to discuss the subject adequately, the author has summarized court decisions by chapters under the following topics:

Guests and Passengers — Law Applicable
Sleeping Driver
Drunken Driver
Inattention to Wheel or Road
Driver Blinded by Sun or Lights
Driving without Lights
Excessive Speed
Driving in Fog, Mist, Snow
Curves and Corners
Intersection Accidents
Collision of Vehicles
Collision with Fixed or Standing Objects
Railroad Crossings
Skidding and Loss of Control
Automobile Defects
Bridge Accidents
Reckless Passing
Guests on Running Board
Injury to Pedestrians
Obvious Dangers
Contributory Negligence — When no Defense

The book also contains a table of automobile speeds and a table of life expectancy.

Numerous decisions concern themselves with the application oī the law of gross negligence as applied to guests in a passenger automobile. In many states the rights of guests against the driver of the automobile have been limited by statute. For example, a typical statute provides:

> Section 1. No person transported or proposed to be transported by the owner or operator of a motor vehicle as a guest, without payment for such transportation, nor the husband, widow, executors, administrators or next of kin of such person, shall have a cause of action for damages against such owner or operator, or other persons responsible for the operation of such car, for personal injury, including death resulting therefrom, by persons while in, entering, or leaving such motor vehicle, unless such injury shall have been caused by the willful misconduct of such owner or operator.

In view of the widespread use of the automobile, many cases have arisen in which a passenger in an automobile has sued the driver due to an accidental injury caused by the negligence of the driver. Since many statutes have limited the rights of recovery by guests, the question has frequently arisen whether the injured was or was not a guest. In many cases it would seem that the courts have attempted to limit the effects of the various guest statutes.

A chapter is devoted to an attempt to define such terms as guest, gross negligence, negligence, recklessness, heedlessness, willful misconduct, wanton misconduct, willful negligence, and pedestrian. Consequently, in addition to guest cases, the author has summarized decisions attempting to explain these terms.

The chapter in which statutes are quoted governing the rights of automobile guests illustrates a serious problem that must be met by the automobile insurance companies. Statutes in the various states are not uniform and therefore it is possible with one set of facts that a decision may be in favor of the plaintiff in one state and for the defendant in another. These variations in decisions may have an effect upon the state loss ratio which will in turn affect the premium.

The chapter on *Contributory Negligence—When no Defense* is a discussion of cases in which the plaintiff was permitted to recover although the plaintiff was also negligent. For example, in one case cited by the author the court held:

> To approach a street in a densely populated part of a city where people are likely to be crossing, at a high speed, and without giving any signal or reducing speed until he was almost within the intersection, and to fail to see the plaintiff's decedent standing in the street, or, seeing him, to fail to apply his brakes, until he was too close to avoid the accident, might reasonably be regarded as evincing such recklessness of results as constitutes wanton misconduct. Such conclusion would determine the defendant's liability without regard to any contributory negligence on the part of the plaintiff.

If one has occasion to read this book he should consider the following possibilities. Courts and juries are bound by certain statutes. In many cases the courts have attempted to interpret these statutes in the light of present conditions, that is, liberally to the injured persons. Nevertheless, one is impressed by the cost of handling automobile litigation and the time required before a final decision is reached as compared with the cost and time in workmen's compensation cases. Decisions are governed by the law of negligence as affected by state statute. Should not one consider that innocent people may be deprived of their future economic usefulness in society due to accidents for which they are not compensated which might not have happened had the automobile, a modern machine, not found an important place in the economic world? Adequate development of the principle of arbitration in automobile cases also may help to determine litigation more quickly and at a lower cost than at the present time.

S. B. Ackerman.

Hospital Care Insurance. C. Rufus Rorem. American Hospital Association, Chicago, 1937. Pp. 71.

The kaleidoscopic progress of group hospitalization plans during the past two years has not only attracted a great deal of public interest but has resulted in an unprecedented growth of hospital insurance written by personal accident and health insurance companies. This report on *Hospital Care Insurance* is a complete, informative, and, most important, an up-to-date analysis of periodic payment plans for the purchase of hospital care.

The reader should be careful to distinguish between hospital care insurance as outlined in this report and hospital policies as issued by accident and health insurance companies. The former type of insurance is issued by non-profit mutual organizations, usually organized under special acts of state legislatures, with benefits payable in "service"; the insurance issued by insurance companies contains benefits payable in cash.

Dr. Rorem's report covers briefly the history and development of hospital care insurance with some detail on background and the early aspects of the movement toward periodical payment plans for the purchase of hospital care. He has paid particular attention to the definition of this form of insurance and has listed the fundamentals of successful group hospitalization plans. The various plans now operating are described including a discussion of benefits and comments on the problems of administration and organization and on the social and economic effect of this insurance on the community.

Of particular interest to casualty actuaries and accident and health executives is the section in the report dealing with actuarial data and loss experience of going plans. Variations in the cost of hospitalization plans according to groups insured and services rendered are explained in detail.

A considerable portion of the report is devoted to exhibits illustrating subscribers' contracts and other forms used in administration as well as rates, benefits and the organization of a number of the larger group plans now in operation.

Harold R. Gordon.

The Impossibility of War Risk Insurance. A paper read before the Insurance Institute of London. Sir William P. Elderton, Cambridge University Press, Bentley House, London, 1938. Pp. 16. Pamphlet.

Sir William concludes against the possibility of general "insurance of property against the risks of war." (So-called marine war-risk insurance, he notes, is very limited.) The reasons are universal but apply particularly to the private insurer. First is the unusual importance of the catastrophe, greater and even more unpredictable than for unemployment. For the private insurer this immediately raises the collateral questions of adequate reserves and the exposure of other insurance funds to the chance of depletion and deficit. Adverse selection, too, would be particularly damaging under a private, which means a voluntary scheme. People think of taking hospital insurance when they feel a pain; they think of war risk insurance when they feel a war. Finally, Sir William makes a considerable point of the difficulty or impossibility, for reasons related to national defense, of replacement during the conflict of lost or damaged property: he is concerned presumably not with moral hazard but because "a payment during the war in terms of money or bonds would be meaningless because money values change so rapidly during a war, and the cost of replacement after the war might have no reasonable relation to the payments made in war time." I should not consider this an insuperable obstacle to general war risk insurance, granted all the other difficulties were surmounted. Property owners and insured persons in general assume the risks of war together with all other citizens. One assumes that property directly used in the public interest and destroyed will be replaced at once, insurance or no insurance. The inequities here appear to be no greater and no more unjustifiable than are faced, for example, by the beneficiaries of life policies who have the bad luck to be paid in a period of inflated prices.

These obstacles, but particularly the last, are so great that in Sir William's opinion even a compulsory nationwide government war risk insurance scheme is not practicable. The British government of the day has decided officially against it. Passing reference is made to the "air risk insurance granted under a government scheme" in the world war, but this appears to have been very limited, indeed really not to have been insurance at all and, particularly in view of the great increase in hazard since, its precedents inapplicable. To meet the war risk Sir William offers two alternative recommendations. The government could put into operation, once war starts, a scheme similar to that of the last war (apparently a form of state or state-subsidized indemnity administered through private insurers for war losses to property used in the public interest). Or it might simply keep a record of losses and after war's end replace or compensate. Sir William indicates no preference. The second hardly seems to follow from Sir William's earlier reasoning.

C. A. Kulp.

Insurance: Facts and Problems. Alfred Manes. Harper and Brothers, New York, 1938. Pp. xii, 182.

Professor Manes' series of lectures, selected from a much larger number delivered by him at Indiana University and elsewhere, form a surprisingly interesting discussion of the insurance business. Professor Manes suggests that the volume is somewhat of a sampling from his extensive store of information and theory on the subject of insurance. I like very much his insistence on the essential unity of all insurance, in the recognition of the element of risk and cooperation to deal with that risk. Since the forms of insurance discussed include also the essentially savings or banking plans of level premium life insurance and property life insurance, many of his generalizations which fit more completely the handling of term risks are not quite so happy in their application to the investment provision which has become a recognized part of the insurance business. I feel this lack particularly because in social insurance one of the major unsolved problems in the United States is how to administer the banking element of long deferred benefits.

The fact that I should put a somewhat different emphasis upon various elements discussed by Dr. Manes indicates how thoroughly interested I am in the way he presents his wide range of information. In insurance the techniques and conventions in use do not necessarily represent the best possible method of dealing with a problem today. Occasionally Professor Manes states underlying qualities of insurance in a way which rather idealizes them and tends toward over-simplification. We all do it but vary the emphasis. Social insurance deals with at least two fields where costs are only very vaguely computable in advance; unemployment and invalidity. We have no clear conception of the relationship of observed experience in the past to developing conditions in the future. The risks are not computable with any accuracy. Such forms of social insurance represent a mutual provision for needs which are coming to be recognized as of general concern, but where in the pioneering stage the needs commonly lack and must lack clear definition. The benefits will be administered by amateurs who will change even the tentative definitions with which they start. I would emphasize much more than Dr. Manes our inability to compute presumptive losses but I would not agree that this means that "insurance" is an improper designation for the program placed in operation. Instead of saying that insurance applies only where losses are computable, I should say that the necessity of dealing with losses which do not lend themselves to any real computation must still be recognized, and we must try to use quantitative analysis, even though we know its profound limitations in these fields. We must not pretend that other than a very crude accuracy is possible.

In reading Dr. Manes' book, with its very interesting discourse on reinsurance as a further attempt at risk spread, one recognizes how slight is the available discussion in many fields. (Some most interesting papers on life insurance prepared by Mr. Laird and Mr. Bagley have appeared in the *Transactions* of the Actuarial Society. Similar discussions by other administrators have appeared in the *Record* of the American Institute of Actuaries.) This little book should serve a most useful purpose in forcing each of us to a clarification of his own definitions of insurance. It is to be hoped that a valuable series of studies dealing more thoroughly with details will develop as students of insurance become more interested in written reports. The book is most useful in our new social insurance field where agreement on the specific purposes of our social insurance is yet to be achieved and where a very large element of supplementary relief seems always to intrude and to complicate our explanations.

This slender volume should stimulate a great deal of discussion, especially in the life insurance field. The inadequacies of this highly developed, sketchily presented combination of insurance and savings are getting more attention today than is its high quality of service. Insurance may defy our terminology but the ineptitudes of our definitions do not damn insurance.

Dr. Manes' lectures are stimulating evidence that knowledge comes but slowly, that problems press unendingly for solution.

W. R. WILLIAMSON.

Insurance Matters Elsewhere. Ludwig A. Graner and Gerda A. Graner. Published by authors, Gelnhousen, Germany, 1937. American address: 6830 Ridge Boulevard, Brooklyn. Pp. 48. Pamphlet.

This most unusual insurance publication is arranged as a series of conversations between a Mr. Jackson, an American insurance man, and a Mr. Huber, who has been in the same business in Germany and Switzerland. In the short scope of this pamphlet the two manage to touch on no fewer than 27 subjects, principally in the casualty field, ranging in definiteness from "Insurance and Personality" to "Recourse Claims by the German Institutions of Social Security" and in importance from "Unpopular Insurance Terms" to "Problems of Calculation in Casualty Insurance." Just as in real conversations, there is no special order or plan. Jackson and Huber flit conversationally hither and yon like two men over cocktails at 5 o'clock, with no pretense at all at exhausting any of their kaleidoscopic subjects and no boggling over enormous generalizations made on the run.

Quite probably Huber doesn't realize this but the chief effect on the American reader of his "hints and advice" is to impress on him that insurance problems are universal. If a reviewer may be permitted the impertinence of retitling another man's book, this one could more accurately be called, "Insurance Matters Everywhere." How patly falls this estimate of the agency system on the American ear: "The most important point is that the agent has really good connections either through being very capable in his job or on account of his having a large circle of acquaintances and relations to begin with." Right down to the last three words the man has something. On the same point he adds that "we had quite a bit of unpleasantness with agents leaving the firm and taking on new jobs with other insurance companies. . . . The sad part is that the companies will not stand together in this matter."

On another venerable American plaint, compare this: "It is a great pity that the courts are so very lenient" with fraudulent and exaggerated claims. Huber deplores contract complexity, the ignorance of the public of insurance principles, the increasing seriousness of ambulance chasing and of moral hazard particularly in liability and personal accident insurance. Even disciplined Germany has a rebating problem.

Like ourselves he is more certain of the problems and evils than of remedies. For public ignorance he recommends particularly education in insurance principles for grade school children (a sovereign panacea here also). He has definite ideas on "in-training" of insurance company employees. Some of his suggestions are stimulating if not entirely revolutionary, for example, that insurance associations can be much more effective in fighting fraud in court and out than individual companies; that there should be an immediate medical examination after every alleged accident.

But the net result of the Huber-Jackson talk is that the Germans and Swiss, even as we, have found no complete or universally satisfactory answer to many of their casualty problems. To cite a final example: "Only a comparatively small number of people take up this career right from the beginning. Most of them . . . only join . . . later, and . . . especially in the years of crisis." It is consoling and in the long run even encouraging to know that our problems and our failures to provide solutions are not unique.

C. A. Kulp.

Law of Implied Negligence. Frank G. Turner. Turner Publishing Company, Miami, Florida, 1936. Pp. xxii, 573.

The principle, *res ipsa loqutur,* is one which is involved with some frequency in the trial of negligence cases. Where proof is made that the injury on which the action is founded was caused by an instrumentality in the exclusive management and control of the defendant and under circumstances which ordinarily would not result in an accident in the absence of negligence on the part of the person operating the instrumentality, a prima facie case of negligence is established which will warrant a judge in submitting the case to the jury, and which will sustain a verdict in favor of the plaintiff. It is thus a rule of evidence rather than a substantive rule of law, and the book is devoted to a disquisition upon this principle, with copious instances of cases where it can, and where it cannot be applied.

It is an interesting speculation as to how many volumes it would take to cover the entire law of negligence if a book of this length is required properly to cover a single element of the law. But the book seems well adapted to the needs of a lawyer called upon to handle cases in which this principle is likely to appear; and the long table of cases, covering some 72 pages, and the excellent index, are evidences of the thorough and careful consideration devoted to the subject.

Clarence W. Hobbs.

Lloyd's. The Gentlemen at the Coffee-House. Ralph Straus. Carrick & Evans, Inc., New York, 1938. Pp. 327.

In this volume the author traces the development of the present day universally known institution of Lloyd's from its humble beginning at the London coffee-house of Mr. Edward Lloyd. When Lloyd's coffee-house was opened in 1686 or 1687, numerous such establishments were already in existence, but in consequence of its convenient location, and more particularly as the result of Mr. Lloyd's enterprise, it had become by the time of his death in 1713 the chief gathering place for merchants, brokers and individual underwriters interested in shipping and marine insurance. With extensive quotations from books, pamphlets, newspapers, letters and other documents of the day, Mr. Straus has woven together an extremely interesting account of the daily activities at the coffee-houses, the conduct of marine insurance by private individual insurers, the controversies attendant upon the chartering of the first insurance companies and the opposition by the individual insurers who feared their existence to be threatened. Following Mr. Lloyd the coffee-house continued as Lloyd's coffee-house under a succession of proprietors of excellent calibre. To their efforts to serve their patrons through improving the facilities for transacting business and their struggles to provide prompt and accurate shipping intelligence which led to the establishment in about 1735 of Lloyd's List is due much of the credit for establishing Lloyd's as an institution of world renown.

Gradually underwriting became a specialized field rather than a side activity of merchants engaged in other undertakings. By the middle of the eighteenth century there were the beginnings of a loose association of those meeting at the coffee-house. Rules and customs were growing up and it was not long until steps were being taken toward a more formal association. Through the troublesome days of the Napoleonic wars and the nineteenth century the author carries his account of the growth of Lloyd's in the face of external problems and internal dissensions to the last days of the coffee-house and the Act of Incorporation. In the late nineteenth and early twentieth century came the spreading out into the field of non-marine risks and the evolution of Lloyd's Audit with its great improvement in the security of Lloyd's policies.

In a final brief but interesting chapter the author shows how

Lloyd's functions to-day by taking the reader on a mythical tour of Lloyd's in company with a Lloyd's broker intent on placing the risks which have been submitted to him in his morning's mail.

Although the title of the volume may suggest a story of Lloyd's written with a particular view to popular appeal, this is in reality a scholarly history of Lloyd's. The author acknowledges his indebtedness to other histories of Lloyd's and to the Committee of Lloyd's which allowed him free access to Lloyd's archives. The book has been written for the layman and no attempt has been made to discuss the technicalities of insurance. The reader engaged in insurance but not intimately associated with Lloyd's might be content if some matters of historical interest were dealt with at less length, while a more extended account of how Lloyd's operates to-day would be welcome. Nevertheless Mr. Straus has written a very engaging history of Lloyd's which merits reading by anyone interested in insurance.

HOWARD G. CRANE.

Pioneers of American Liability Insurance. Edson S. Lott. Montross & Clarke Co., Inc., New York, 1938. Pp. 178.

Well-written biographies always make worth-while reading. One has the opportunity so often to be reminded by the experience of others of one's own similar experiences; likewise one can draw from the riches of the experiences of others the better to cope with problems ahead. There likewise is probably no better way to know the history of any given time than by knowing the history of the individuals of that time.

In *Pioneers of American Liability Insurance,* we find some short, vivid and chatty sketches of the early executives of liability insurance companies written by that grand old man, Uncle Edson. He knew them all well. He was closely associated with them. Through his accounts of the men we get a picture difficult otherwise to obtain of the liability insurance business, the men who made it what it was and indeed what it is, and the way it was carried on in the beginning in this country.

These truly great men of the first 50 years in the casualty business are delightfully and entertainingly portrayed in Uncle Edson's own inimitable manner. His well-known sense of humor and his kindliness of spirit show forth and that vivid style of his, combined with accuracy and devoid of exaggeration, makes the different characters stick out as in an etching.

The sketches are arranged alphabetically.

Among the first is Samuel Appleton whom I knew well, who was the best friend I ever had in business, whom I loved and admired and whose company wrote the first liability policy in this country. He was indeed, as Mr. Lott says, "scrupulously just," a "splendid specimen of virile American manhood," "loved by his associates and respected by insurance men everywhere." His best friend could not have paid him a greater tribute.

One more surely realizes the reasons for the foremost rank to which the Travelers Insurance Company has attained by reading Mr. Lott's stirring accounts of James G. Batterson, Sylvester C. Dunham, Louis F. Butler and William Brosmith. This great company is indeed "the lengthened shadow of [these] men." Of them, while privileged to know both Mr. Butler and Mr. Brosmith, I knew the latter far better. Here, indeed, was a real lawyer. Whatever may be said now and then about lawyers being necessary evils and general nuisances, lawyers are certainly taught to "think straight." Straight thinking is surely right thinking and all businesses require this; hence the good lawyer is a real aid and I believe a necessary and vital one to any large business. These days one is certainly not doing the right thing to be without the assistance of the right kind of legal adviser. There can be no doubt of the tremendous assistance Mr. Brosmith was to the Travelers' executives and the great amount of good he accomplished not only for his companies but for the business as a whole. "The world of insurance was made better through his connection with it." Underwriters, agency men and all others in the business who may be inclined to think of lawyers as unnecessary will do well to read the chapter on William Brosmith.

"John H. Thom was a mighty nice man. I was very fond of him," says Uncle Edson. Everyone who knew John Thom will subscribe heartily to this. What a rare personality was his! He accomplished in his quiet endearing manner as much as any hard-boiled strenuous executive ever did.

Unfortunately I never met Morgan G. Bulkeley, yet all will read again and again, I am sure, the brief sketch of him, perhaps the most excitingly interesting of them all. What a marvelous life he led! A picture of him (and there is a photograph of each "Pioneer" which much increases the value of the book) shows a strong, yet kindly, individual. The anecdotes of the Hartford meeting of the Grand Army of the Republic and about him as the "Crowbar Governor" are amusing, but still show clearly the wonderful characteristics of the man whose outstanding company still carries on as he would have it.

One of the remarkable things in Uncle Edson's book is that he can make each of his nineteen individuals stand out so clearly and make each one of them distinctive and apart because of some particular accomplishment or peculiar characteristic.

Thus we find that Mr. Atwood invented the phrase "preferred risks" of which we have heard so much; at the same time we cannot forget his grapefruit orchard. We are reminded that John R. Bland was the founder of a great company and we remember what a forceful, outstanding personality was his. We read of the inauguration of credit insurance by Mr. Ising. There are called to our attention the captivating characteristics of Captain Masters. The fight for multiple line companies, started by Mr. Seward, still is a live topic. Those of us who knew John T. Stone, the President of the Maryland Casualty Company, which he founded, recall his deeply religious character and we found evidence that such a man may indeed be a successful business executive. We all fondly remember his assistant and successor, F. Highland Burns, beloved by us all.

Pioneers of American Liability Insurance is all too short. Excellent as is each portrait, we put the book down after reading each chapter, wishing that Uncle Edson would go on talking, yet doubtful if he could add anything further.

> The heights by great men reached and kept
> Were not attained by sudden flight.
> But they, while their companions slept,
> Were toiling upward in the night.

Everyone in the casualty business to-day should read this little volume. He can do it with much benefit to himself and most surely with pleasure. It should be a requirement for the casualty courses in the Insurance Institute.

There is but one lack, and that is "Uncle Edson's" autobiography. Look about you, if you will, and where can you find one who for so many years and with such steadfast purpose has done more to make casualty insurance more useful? What man has brought greater credit to our business than he? Who has contributed more to its readable literature? Who has ever been more earnest to accomplish that which would do the business most good? Who, of all in the business to-day, commands greater respect and who is more devotedly loved than he? His cheery presence graces whatever company he sees fit to enter. His counsel and advice are still sought. He is the best known figure in the business. Who would not wish to do him tribute?

We in the business to-day must be most grateful to Uncle Edson for taking the time and the trouble not merely to write about these great men of the past in our business but to do it in so interesting and striking a fashion. We indeed hope that ere many a day is passed he may again take his pen in hand, write not only his autobiography but a further book about present-day executives in the business. I know of no better way to express gratitude to another for a favor than to ask the person doing the favor to keep it up. Therefore, I charge you, "Uncle Edson," to use those remarkable talents of yours and record in your own inimitable way the trials and the tribulations, the successes as well as the failures, the virtues and the defects of those to whom the pioneers "from falling hands threw down the torch."

EDWARD C. STONE.

Principles of the New York Standard Fire Insurance Policy. Abe J. Goldin. Insurance Publishers, Philadelphia, 1938. Pp. xiv, 319.

This book, representing a large amount of research (there are citations to over 1,300 decisions) is a convenient handbook in which to ascertain what the courts have said about the various provisions of the New York Standard Fire Insurance Policy. It is divided into four parts: two prefatory to the discussion of the contract, and one supplementary.

Part I consists of one ten-page chapter entitled *History of Insurance.* Obviously a less ambitious title would have been more appropriate. The period covered ranges from the Code of

Hamurabi about 2,000 B. C. to the adoption of the present New York Standard Policy. It touches some of the most significant high-lights of the subject. This reviewer noticed no erroneous statement, but one giving a distinctly false implication. After referring to the adoption of the New York policy as the legal standard in several other states, the author says: "Similar laws were passed in California, Michigan and Wisconsin, with slight changes." The California Standard policy was adopted in 1909 and may well have inspired the move for a new national standard policy which led to the drafting of the New York form.

Part 2 consists of 10 chapters covering 50 pages, and deals with Policies, Parties, Insurable Interest, Agents of Insurers, Brokers, Oral Contracts and Binders, Entire and Severable Contracts, Reformation, Renewals, Mutual Insurance Companies. Some of these topics are well handled. The discussion of agency in general on pages 35 to 38 is excellent despite, perhaps partly because of, its brevity. Of course, the one and one-half pages of Chapter 10 devoted to Mutual Insurance Companies can do little more than cite statements as to the legal status of members and to their assessment liability made by the courts in cases in which these matters were involved.

Part 3 is the major part and purpose of the book. It contains 52 chapters, some a page or less in length, and in all contains 183 pages. The arrangement is good. Each provision of the contract is taken up (the order follows the arrangement in the policy) and its meaning explained. The explanation generally consists of a series of direct (almost dogmatic) statements with footnote citation to a case as authority, sometimes more than one. The author does not discuss the cases and while at times he does say the courts are not in agreement on a point, it would in the opinion of this reviewer make the book more valuable if more evidence were presented of the uncertainties which do exist. For example, the author refers in three lines to the mortgagee clause with full contribution but says nothing of the opposing interpretations given by the Court of Appeals of New York (Eddy v. London Assurance, 143 N. Y. 311) and the United States Circuit Court of Appeals (Williams v. Hartford, 63 Fed. 925) decided at almost identically the same date.

Part 4, 22 pages, consists of 8 chapters entitled Coinsurance

Clause, Cyclone and Tornado Rider, Iron Safe Clause, Sprinkler Leakage, Use and Occupancy Insurance, Rent, Rental Value and Leasehold Insurance. While this reviewer is not familiar with windstorm insurance, it seems to him there is a serious error in Chapter 2. What appears to be a rider to be attached to a tornado policy extending it to cover hail damage is referred to as the Cyclone and Tornado Rider with this comment: "The above clause is placed on a Standard Fire Insurance Policy in the form of a rider."

Following the main text there are reproductions of the New York Standard Fire Insurance Policy and a number of forms used in conjunction with it. There is a full table of cases and a good index.

The work is marred by a number of curious if not ungrammatical statements. Some of these are readily understandable; for example: "inter-insurance associations are (sic) 'the system of insurance' . . . "; "the present Standard Fire Insurance Policy does not attempt to limit its (sic) agents . . ."; "whether or not the relation . . . exists in any given case must be determined by the facts in each (sic) case"; "The inspection by the agent of the insurer, who found that gasoline engines were to be used on the premises insured to generate electricity, and despite this knowledge the policy was issued, it was held that the insurer could not avoid payment on the ground that the engine or engines increased the risk." The meaning of some, however, is far from easy to discern. For example: "the practice has developed to extend credit to the extent of the insurer" (p. 60); "Thus a denial of liability will permit the insurer (sic) to begin suit before the period for exercising the option expires"; quoting a case relative to liability of the insurer for expense of removal of goods endangered by fire, "the damage and expense of removal, too, must be such as might reasonably be insured (sic) under the circumstances of the occasion."

Perhaps these criticisms overstress minor flaws. The book, if used with caution, will doubtless prove a valuable aid to those seeking to understand the provisions of the policy discussed.

A. H. Mowbray.

Report of the Joint Legislative Committee to Investigate Automobile Insurance. Legislative Document (1937) No. 84, and Legislative Document (1938) No. 91. State of New York, Albany. Pp. 191, 405 respectively.

These legislative documents contain the findings, observations and recommendations of the Joint Legislative Committee to Investigate Automobile Insurance, originally appointed by the Legislature of the State of New York under a resolution adopted May 13, 1936 and continued by a resolution adopted May 7, 1937.

The resolution creating the committee empowered it to

1. Investigate the existing forms of automobile insurance;
2. Determine the advisability of providing by law for a system of compensation for and a system of insurance against automobile injuries;
3. Study the number and cost of automobile accidents, including the expense of litigation, the amount of verdicts, the amount of money actually received by the plaintiff, and other factors inherent in the present system of automobile liability insurance;
4. Estimate the probable cost to automobile owners of a system of compulsory automobile insurance and a system of compulsory compensation insurance for bodily injuries resulting from the operation of automobiles.

The committee consisted of three members appointed by the Temporary President of the Senate and five members appointed by the Speaker of the Assembly and organized by electing as Chairman Julius S. Berg. Certain changes occurred in the personnel of the committee due to the failure of some members to be re-elected to the Legislature.

The reports contain an enormous amount of factual data bearing on automobile accidents, their causes and effects and an inordinately long dissertation on the making of automobile liability rates.

The first report of the committee, embodied in Legislative Document No. 84, after setting forth the problem and reciting the arguments for and against financial responsibility and compulsory liability insurance laws, as typified by the Massachusetts act, and the compensation plan for automobile injuries, concludes with the recommendation that the committee be continued, in order to give further consideration to the results of an analysis of 10,000 accident reports filed in New York State during 1935 and 1936, to make a more thoroughgoing analysis of compulsory automobile insurance and finally a more thorough analysis of the present rate-making structure in New York State. For reasons not entirely clear the committee indicated its intention to look into expense loadings with the idea of effecting their reduction.

The second report of the committee, embodied in Legislative Document No. 91, covers much the same ground as the first, but includes a draft of a compulsory automobile liability insurance law, called the Berg Bill, and a proposed automobile accident compensation law. The committee has been eminently fair in allowing proponents and opponents of these measures to state their sides of the controversy before the committee. For example, the report includes the observations of Mr. A. A. Ballantine, Chairman of the Columbia Study in 1932, in favor of a compensation plan, and the able argument in opposition to the plan by Mr. P. Tecumseh Sherman, Counsel of the Association of Casualty and Surety Executives.

The arguments for and against financial responsibility laws, compulsory liability laws and the compensation plan are familiar to all insurance men and need not be repeated in this review. The observations of the Legislative Committee, however, are always interesting and sometimes startling, and deserve some discussion.

At one point in the report, the committee makes the statement that "The probable reason for the insurance companies' attitude toward any proposal for compulsory legislation is that they fear such legislation will create insurance competition with the State." This will be news to most insurance men who have resisted compulsory automobile insurance because it takes away from them the right of selection and makes a political football out of rate-making. As a matter of fact, some insurance men would like to see the State engage in the liability business, because they are confident that the state authorities would soon find themselves in such an unholy mess that they would quickly abandon the experiment for all time. If insurance companies, under compulsory automobile insurance regulation, were permitted to use their experience and their judgment in the selection of business and if they were permitted a fair rate on the business yielding but a slight profit, much of their objection to such legislation would disappear.

Perhaps the most extraordinary statement in the whole report is the recommendation that the committee be continued because of "the psychological effect the existence of this committee has upon the insurance interests because such psychological effect has been demonstrated by several voluntary reductions in premiums since this committee was originally created." It would appear from this that this committee, like many other legislative agencies, feels called upon to swat the interests. Aside from the admitted fact that lower insurance rates may influence more people to buy insurance, there seems to be little relationship between rate-making and accident prevention and the indemnification of accident victims. The inference that the mere existence of a committee can bring about rate reductions which would not otherwise be made is hardly a compliment to the rate-makers and the supervising ability of the Insurance Department of the State of New York. To those familiar with the making of automobile rates in New York State during the last few years and with the strict supervision of such rate-making by the Insurance Department, the committee's statement would be irritating were it not so ridiculous in its implications.

The committee further recommends that it be permitted "to conduct an investigation of the various stock and mutual companies both with respect to losses reported and pure premiums charged and for the purpose of reducing expense loading on total premiums charged." Here again the fact that there are stock companies which pay commissions to agents and mutual companies which pay dividends to policyholders seems far afield from the problem of seeing that automobile accident victims are indemnified for their hurts. Recommendations like this cannot help but encourage the thought that the committee is more concerned with the spectacular and popular pastime of bedeviling insurance companies than it is in removing the serious defects in compulsory automobile insurance laws, such as that of Massachusetts, and the obvious difficulties of its proposed compensation plan.

It must be said that the committee has covered a tremendous lot of ground and has included in its reports most of the literature and most of the observations on the subject of indemnification for automobile accident victims. In that respect the committee has done a good service. Perhaps if it be continued in existence, it may be brought to consider the difficulties in the various proposals advanced for dealing with that subject and evolve a plan which will avoid the pitfalls obvious in all of them.

H. P. STELLWAGEN.

Twenty-Five Years of Health Progress. Louis I. Dublin and Alfred J. Lotka. Metropolitan Life Insurance Company, New York, 1937. Pp. 611.

In *Twenty-Five Years of Health Progress* the Metropolitan Life Insurance Company presents a detailed analysis of the mortality experience for the period 1911-1935 of its weekly premium-paying industrial policyholders. The book is impressive and on examination proves to be extremely interesting and full of value to anyone concerned with the detail of developments in the field of health and safety.

The statistical material comes from the experience of some 14,000,000 policyholders (on the average) and covers a life experience of nearly 350,000,000 years. This group is not entirely typical of the general population. There is, as would be expected, a larger proportion of urban residents and persons at the younger age levels than in the general population; also a somewhat larger proportion of females and of colored persons and a considerably larger proportion of industrial workers. Since, however, the statistics are in general given or are to be had in terms of occupation, age, sex and color, it is possible to convert this experience by means of the appropriate weights into an experience reflecting conditions in the general population, and this to some extent has been done. However the experience evidently follows so closely that of the general population that it is highly valuable not only for itself but for the light it throws on the more general problem, and particularly because nowhere else is there available such a mass of experience covering so long a period. Not from the statistics of the U. S. Census Bureau for instance; in 1911 the Death Registration Area comprised only 10 states and it was not until 1933 that the whole of the United States was included in Federal mortality statistics.

It was in 1911 that the Metropolitan Life Insurance Company launched its health and welfare program, so that the 25 years covered by this book coincide with the lifetime of this experiment. During this period as is well known, even though it included the World War and the great influenza epidemic, there has been a remarkable improvement in health conditions. In the Metropolitan group there has been an increase in life expectancy of nearly 14 years. This is more than a coincidence, for the work of the Metropolitan Life Insurance Company in the conservation field has been one of the important factors in producing the better health conditions that we have to-day.

The details of this remarkable improvement are embodied in tables and charts and the causes in each case are discussed as well as the possibilities for further preventive work in the future. The outstanding improvement in the control of children's diseases is generally known; here, however, appear such additional details as the fact that whooping cough reverses the experience of the other communicable diseases of childhood in having a higher death rate for girls than for boys, for colored children than for white children and for rural areas than for urban. Here also appears the fact that tuberculosis has been relegated to a relatively minor place among the causes of death and that diseases of the heart and cancer and accidents have come to the front. Interest in the book comes not from corroboration of such facts but from the additional details that are supplied.

The statistics in the accident field will be particularly interesting to the members of this Society and a large amount of fresh material is here to be found.

One of the interesting questions in the present stage of our social development is the extent to which help on our problems can be had from commercial organizations. In many cases the interests of such concerns coincide with or run parallel to the interests of society. It is highly desirable that all such help should be utilized and one of our present problems is to make available such help without running into the complications that are produced by the commercial factor. Insurance is a field in which this relationship is particularly close, since the objectives of an insurance company in the saving of life are practically the same as those of society. The Metropolitan Life Insurance Company has demonstrated that such an organization can not only perform an exceedingly valuable public service but that the direct as well as the indirect effects of such work will at the same time be profitable to itself.

ALBERT W. WHITNEY.

PUBLICATIONS RECEIVED

Health Insurance with Medical Care. Douglass W. Orr and Jean Walker Orr. Macmillan, New York, 1938.

Labor's Risks and Social Insurance. Harry A. Millis and Royal E. Montgomery. Vol. 2. McGraw-Hill Book Co., New York, 1938.

Frequency Curves and Correlations. Sir William P. Elderton. Macmillan, New York, 1938.

Elementarschäden und Versicherung. H. Lanz-Stauffer and Curt Rommel. Rückversicherungsverband kantonal-schweizerischer Feuerversicherungsanstalten zur Förderung der Elementarschadenversicherung, Berne, Switzerland, 1936. 2 vols.

Research and Statistical Methodology Books and Reviews, 1933-38. Oscar Krisen Buros, Editor. Rutgers University Press, New Brunswick, 1938.

Planning and Administration of Unemployment Compensation in the United States. Bryce M. Stewart. Industrial Relations Counselors, New York City, 1938.

Insurance. S. B. Ackerman. McGraw-Hill Book Co., New York City, 1938.

Property-Life Insurance. Hans Heymann. Harper & Brothers, New York City, 1938.

ADDRESSES AT THE SOCIETY'S DINNER

November 17, 1938

HON. LOUIS H. PINK:

One of the duties of the Insurance Department, aside from regulating all of the companies and all of the insurance, is to send out into the insurance world trained, capable and loyal men who have graduated from our Department. Among these are numbered Leroy Lincoln, President of the Metropolitan; Al Hurrell, of the Prudential, a fine and able man who died so recently; George Merigold and Jim Hoey. Scattered everywhere you will find men of this type who have at one time or another been attached to our department. Your President here to-night is a graduate of the Insurance Department of this State; we are proud of him, and tonight we tender him the honorary degree of summa cum laude.

Last year, in consequence of another invitation of your President, which ultimately had to be declined, I took the liberty of looking up a few matters. Nobody knows what actuaries are, so I went to the library to find out. I opened some of these actuarial books and I came to the conclusion that actuaries are either supermen or a bunch of "nuts." . . . (Laughter) . . . I found, too, that there is "nothing new under the sun." While I had been told by actuaries, in the Department and out, that your science is something new, developed out of the complexities of modern life, this appears not to be an exact statement of the fact. There were actuaries back in the days of ancient Rome. I didn't go back to the days of the Medes and the Persians, though I have no doubt there were actuaries then also. In ancient Rome the actuaries registered the decrees of the senate, published them and gave out the news. Incidentally, they audited the military expenditures when any of the Roman emperors thought that accounts were necessary.

There is no monopoly on learning. A man named Fry, who was a rat catcher, wrote Mayor Gaynor (about whom I happened to write a book) complaining that he didn't have time for jury duty, that his business was too poor. The Mayor replied, "My experience is that learned men are apt to be found everywhere."

As we read in "Don Quixote": "The mountains breed learned men and the philosophers are found in the huts of shepherds."

These Roman actuaries apparently didn't do a very thorough job. There was at that time something in the nature of life insurance; but so far as I could learn it was something like the "Numbers" game they run up in Harlem. The actuaries could not have been very efficient in those days, because they failed to put the business upon a sound basis, and both Julius Caesar and Augustus had to step in and start it operating.

Two or three hundred years later we find the first real actuary, Ulpianus, whose name, for ease in pronouncing is commonly abbreviated to Ulpian. He established a mortality table. He was, like yourselves, a man of learning, a scholar, and his writings furnished material for a great part of the Justinian code. While this first mortality table was rather crude and has been called unscientific, it persisted for some two thousand years, and it is interesting to learn that human life was not as long in those days as it is to-day. Ulpian's table prophesied that a person twenty years old would live thirty years, while the American experience table gives 45.2. His table showed that a person fifty to fifty-five was expected to live nine years, whereas under the American experience table he may console himself with the knowledge that he has 19.49 years to go. As you know, the American experience table is conservative, and people live even longer than that.

During the period after "Ulpian," there were wars, chaos, no sanitation of any kind, and human life became so cheap that people had practically no expectancy of life whatever. If a man became old he was revered, because in those days there were so few old men.

The first modern actuaries, as I understand it, were just clerks who knew how to figure—glorified bookkeepers. Seventy-five years or so ago there were no schools, and the actuaries had to get their training in the office, sometimes with the help of learned societies. Two of the most successful early actuaries were closely identified with insurance. One of them, coming from that great state of Commissioner Harrington's—the State of Massachusetts—was known as "The Father of Life Insurance"—Elizur Wright—and the other actuary, William Barnes, was the first superintendent of insurance of the State of New York. He held office for ten years, longer than any other superintendent has lasted or is likely to last. So far as I can learn, the only reason for this was because he was an actuary and none of the rest of us have been. He was the only actuary, as far as I know, who became Superintendent of Insurance.

Both of these men obtained their training through self-study and diligence, and what Mr. Wright was like may be gauged from a letter he wrote to Salmon P. Chase. He was very modern in some respects and was asking Mr. Chase for a government job. He said, "I know very well that I have the power of arithmetical combination and an ability to marshal figures by the millions, and so simplify, systematize and give despatch to the management of details such as cannot be found and never was found in any Washington bureau."

The actuary, I am inclined to believe, is a very important factor in the modern world. Men trained in your science are needed in all the complex forms of modern business and particularly in the field of insurance. In the early days you had to learn by yourselves; now, fortunately, many colleges and universities throughout the land give courses in actuarial science. It is a profession which appeals and should appeal only to men of large mental ability. At the University of Iowa, where they have given training of this kind for years, they recommend that only those who are among the ten per cent highest in the mathematical courses should take up actuarial work, and it is also urged that a sound general college education precede actual actuarial study. It isn't enough for an actuary to know figures, he must be able to think and to advise. He should not be a mere adding machine, he must be something of a mathematical statesman. In a modern insurance company, while the President makes the speeches and gets the high salary, it is the actuary who must sit in his office day after day and keep that company safe. He has the same duty as has the insurance department of this state—he must keep the company solvent, and it must be solvent both from a theoretical and a practical standpoint.

The actuaries have produced three men who have broken through and become presidents; one of them, Henry Moir, for many years President of the United States Life Insurance Company; F. W. LaFrentz, formerly President and now Chairman of the Board of the American Surety Company, and Louis F. Butler, of the Travelers Insurance Company. These men have lent great distinction and honor to the insurance business and are a credit to your profession.

The business of being an actuary is something like the ancient pagan oracles and priesthoods—shrouded in mystery. Those who maintained these oracles kept them secret and didn't want the public to know what was going on. It is like that with the actuaries; they rear a stiff mathematical barrier between themselves and the rest of society. Nevertheless we of the Insurance Department have a very high regard for actuaries. Charles Dubuar, our principal actuary, is a man of standing and ability, a man of excellent training. He has served the Department loyally and is one of the most faithful and one of the most efficient men we have. Mr. Hollenberg, our actuary in the life field, too, is a man of notable parts, most helpful to our Department. Of our 130 examiners, some of whom are here to-night, (we have a fine lot of examiners in our Department, men and women who have studied and worked and perfected themselves for the most important of all work of supervision, maintaining the solvency of companies), 17 are either actuaries or have had actuarial training.

I once asked Mr. Hollenberg, not in connection with this invitation to speak, "what is an actuary, anyway?" "Well," he said, "the actuary is something like a doctor." I think that is very well put, and may I just carry that idea a little further and say that the business of the actuary is not only to diagnose trouble and cure the patient, but it is like the "apple a day." The actuary's business is from day to day to study his work, diagnose his company and keep it solvent, thereby keeping it out of trouble.

Constant and careful study of the insurance company by the actuary is essential to sound health. Unfavorable experience resulting from improper underwriting should be detected before serious consequences arise, and measures for correcting the situation should be prescribed. The actuary is generally thought of in connection with life insurance because, largely through his efforts and through his work, life insurance has been made the safest and most scientific business in the world. Nevertheless, great strides have been made in actuarial science in other branches of the business. It has gone far in the casualty field, especially in the field of workmen's compensation. There remains a large unexplored field in fire insurance rating. It should be more selective; giving more attention to localities.

New types of insurance, such as social security legislation, old age assistance, unemployment insurance, automobile insurance,—and new methods of merit, experience, and retrospective rating, require the best knowledge and the best professional skill that you can give them. There are still many branches of the insurance business where the actuary has not yet been utilized to the fullest extent; where there is opportunity for the development of progressive and equitable rating structures attuned to the demands of modern business life.

We have been interested particularly, of late, in trying to work a sound merit rating system in the automobile field. Another problem closely related to that, which is coming more and more to the fore and which must be answered in the near future, is some method of providing protection to the public against the uninsured and irresponsible automobile driver. Only about one-third of the operators of automobiles are insured. There is perhaps another third who are wholly irresponsible and from whom nothing whatever can be obtained in the event of accident or death. The public will not long tolerate that situation; the public will demand protection. Various schemes have been proposed, among them a compensation plan similar to that in the field of industry. We have had legislative committees studying that problem; they report from year to year. They give us descriptions of various plans but come to no conclusion. We know that, theoretically, the compensation plan for automobiles is, probably, the fairest and the most equitable of all, but we also know that it will be very costly and that it may set back the growth of the automobile industry considerably and extensively. The only way to find out whether or not there is any practicability or genuine merit in the plan is to get the actuaries busy and study it and report upon what it is going to cost. Until these legislative committees consult the actuaries we shall never get the answer to that question.

The actuary is hired by the companies. He is essentially a professional man. But no matter who pays a professional man he must keep his own opinion, and that the actuaries have done.

They realize that, after all, they are serving, not their immediate employers, but the public. The reason for the existence of insurance is service to the public. We in insurance, particularly, owe much to the actuary. He has kept us sound, he has kept us solvent, and we shall owe more to him in the future.

MR. S. BRUCE BLACK:

When I first came to Boston, I worked at No. 50 State Street, and along about ten o'clock each morning the superintendent of the building would go to the building entrance and wait. When he saw a certain gentleman arrive, he would push a certain button and all the elevators would come down and wait while that gentleman entered and took one elevator up to his office on the second floor, and then the building resumed its normal routine.

Well, one day I followed that man (I had to use the stairs) to find out who he was, and on his door was his name and the title "Actuary." Now, that caused me to want to be an actuary, too. I have never seen an actuary just like him since but that is because I have associated largely with casualty actuaries.

This Society is twenty-four years old, and it has had a rather interesting experience. The business we are in has been a fascinating business, and I believe that it will be at least as fascinating in the next twenty-five years. It came into being almost with the inception of workmen's compensation insurance; something new—a field for intensive study;—and this Society has furnished an arena in which much has been done constructively, much has been discovered, much has been made public that has assisted the business in going forward to greater usefulness.

Workmen's compensation insurance is an interesting field of study. After twenty-five years, we, of course, know quite a bit, but there is still a good bit we do not know. While the first compensation law came into existence about 1911, there had been many years of discussion before that. Mr. Lott knows more about that period prior to workmen's compensation than I do. With the passage of the first compensation law it was amazing how rapidly a new system swept the country. We had a new social plan for handling a social problem. Insurance companies have assisted in making that social plan as effective as possible.

Workmen's compensation laws were never passed in order that insurance companies might write workmen's compensation insurance, but insurance companies are permitted to insure workmen's compensation because insurance is an absolute necessity in making any plan of compensation effective. It is a privilege which we in the compensation business enjoy that we are permitted to help make the system of compensation as effective as possible. It has seemed to me that each year our companies have done an increasingly effective job in accomplishing some of the purposes for which compensation laws were passed—not merely an insurance of a risk, but the other and great purpose of compensation was to bring all the energies of employers and employees and the public together to eliminate as far as possible the loss due to work injuries. I think that in recent years we have seen an intensified effort on the part of insurance companies to accomplish that purpose of the compensation system.

Since the beginning of this Society, another great field of insurance has grown up. Of course it came into existence before the Society, but it has been during the last twenty-five years that automobile insurance has come to attain a place of even greater importance to our companies than compensation insurance.

In many ways the automobile accident is to-day comparable to the work accident in the early part of this century. There is a great deal of public agitation, a great deal of public concern about the automobile accident. What shall be done about it? I don't know what the ultimate answer is going to be, but I do know that the public is going to find its answer to the problem of the automobile accident. I believe that whatever that answer is, insurance of some form is a necessity in making that system effective.

It is my belief that this Society—the actuaries of our companies—can contribute a great deal to finding a sound solution to the problem of the automobile accident, that our actuaries can give to our company managements a long viewpoint which we sometimes lost in all the intensity of competition. After all, automobile legislation, whether it is compulsory insurance or whether it is a compensation system, will not be enacted because the insurance companies want it or don't want it, but it will be brought into existence to meet a definite public need and to serve a definite social purpose.

Our concern in the insurance business is that we be privileged again, as we have been in the field of compensation insurance, to do what we can to make whatever system is finally accepted as effective as possible. That, it seems to me, is a challenge not merely to the insurance companies, but a peculiar challenge to the men of scientific trend of mind in our companies.

I think our Actuarial Society has been a forum where people who are interested in facts, interested in the scientific, the scholarly part of our business, can get together, whet their imaginations and go back to their offices with a desire to dig in and find out something more about our business. I do not think that our companies have generally given to our actuarial departments either the resources or the encouragement that they really should have had, and I think that our whole business would have been better had our actuaries had an even greater part in our managements than they have had.

The thought that I would like to emphasize to-night, not merely for the benefit of the members of this Society but particularly for the benefit of the executives of companies who may be here, is that the more we can encourage our actuarial departments to be in fact searchers after truth, searchers after the sound, long-time answer to these problems, the better our companies are going to fit into a permanent scheme of social insurance, for after all, compensation insurance, automobile insurance and, indeed, all kinds of insurance are social insurances.

Too much of the effort of our actuarial departments is devoted to getting out the required data for insurance departments and rating boards, and to getting out data to prove that some other company isn't as good as our company, so that when all those things are done there isn't much time or money or brains for doing the long-viewpoint job of finding out what are the facts, making these facts public, so that the practical underwriters to whom Commissioner Harrington refers can do something with them in actual operation. But the job of the actuary is to be the scholar in the insurance business, to find the facts and make them available for the rest of the organization to use. I want the actuaries to have a larger part in our business and I don't care whether an actuary is an actuary or a statistician or an economist or what he is so long as he is a scholar in the business. There are plenty of people in the business-getting end and the underwriting end who apply all the practical aspects that are needed. I am very much honored to be privileged to be with you to-night—privileged to appear before a society of scholars, of fact-finders in our business. And I am also honored to be privileged to be at this head table in this galaxy of distinguished personalities.

MR. EDWARD C. STONE:

In a serious vein, if I may, I should like to say a word to you about what I call the "usefulness" of insurance. In these days we hear a great deal about the huge assets, particularly of the life insurance companies, made the basis of the senate monopolies investigation, and we are told that the combined assets of the life insurance companies, for example, are one-tenth of the tangible assets of this country, and the attention is fixed upon the aggregation of wealth behind those life insurance companies.

Likewise, when we go into other fields, again, suddenly from a vocal part of the community sometimes called "politicians," we hear a great deal about the huge capital and surpluses of these various companies, the emphasis again being upon what an aggregation of wealth they are and therefore possibly what a source of menace. But how many people take the pains to go further and point out the usefulness of those various kinds of companies? How many of us in the business look into it sufficiently to be able to gather some facts together which will give, in concrete form, the good which is done by some of those companies, or all of them together?

I have picked out ten years in the history of this country—1925 to 1934—because during that time we had a period of about as much prosperity as we have ever had, and likewise we went through a depression which was the worst that this country has ever seen. It would seem, therefore, that these years certainly are good years to test the usefulness of insurance and particularly the usefulness of companies engaged in the insurance business. In that ten-year period—1925 to 1934—taking the figures compiled by the New York Insurance Department of all the fire and marine companies that were doing business in the State of New York, I find that they paid out to policyholders, in that ten-year period, the sum of $4,455,369,845; that, according to Best's tables, the casualty companies, taking now their losses incurred, are credited with the enormous sum of $5,088,068,661; and the Spectator Company reports that life insurance companies paid out to their policyholders the stupendous sum of $21,438,037,011. Thus the combined stock and mutual fire and marine, casualty, and life insurance companies in that ten-year period (1925 to 1934) paid back into this country for the benefit of people who lived there, the astounding sum of $30,981,475,517—almost $31,000,000,000—in a period on the one hand of great prosperity and on the other hand of the deepest depression.

If one wants to find out about the usefulness of anything, imagine existing without it. If one ever wants to test how useful a thing may be, the obvious thing to do would be to imagine how we should be if we did not have it. Take the automobile, for instance. If one wanted really to think about the usefulness of that piece of mechanism one should imagine what we should be to-day if there were no automobiles. Now just imagine what this country would have been in that ten-year period, and particularly in the times of depression, if there had not been available to the people of the United States that huge sum, almost in astronomical figures, of $31,000,000,000. Can there be any doubt of the usefulness of an institution that has brought for the benefit of the people of the United States such a tremendous sum as that?

We hear a great deal in these days about wages and salaries and the purchasing power that goes with them. Did you realize that in that same ten-year period (and again you see I am taking a period of prosperity and matching it up with the period of our deepest depression) the fire companies (now my figures are taken of all the companies on the returns to Massachusetts; it doesn't mean, of course, that they're merely the sums spent in Massachusetts, but all the companies doing business in Massachusetts had to file reports there) in that period paid out, in salaries, wages, and expenses of officers and employees, $881,173,596, the casualty companies paid out some $800,000,000 and the life companies paid out in Home Office wages and salaries $885,392,921, or a total of $2,566,566,517. Is there any doubt, my friends, of the usefulness of an institution that pays out in wages and salaries a sum as large as that? Imagine that amount of purchasing power being taken away from this country during that period of prosperity on the one hand and depression on the other. Can it be said that institutions that paid out that amount in salaries and wages were useless?

If now we go further and tell the amount paid out in commissions and acquisition costs, we have an even more astounding record, because, taking that same period, the fire companies paid to agents and brokers $2,051,041,818. The acquisition cost (which includes more than just commissions) of the stock and mutual casualty companies amounted to $1,732,465,055, and the amount paid in commissions by the life insurance companies alone was $3,349,325,374; so there was added again to the purchasing power in this country by reason of these same institutions during that period the sum of $7,132,832,247.

I won't weary you with any other figures except the most unpopular ones of taxes, and of those companies in that ten-year period the fire companies paid in taxes and fees the extraordinary sum of $324,834,652, the casualty companies paid $173,304,618 and the life companies $550,676,689, the total of which is $1,048,815,959.

Assume that we took out of this country during that period the amounts paid in losses, the amounts paid in wages and salaries, the amounts paid in commissions and acquisition costs, and the amounts paid in taxes, where would the national debt be at the present time? If we add all those figures together, we get a sum which is greater or as large as our national debt is at the moment. I say the one thing we should keep in mind, being in this business, is to try to get figures like these and have them available so that when we hear our institutions attacked from any angle we have got some figures which we can use to demonstrate the usefulness of the institution of insurance.

Now is that all that is done by the companies? Isn't there a tremendous amount of good done by the institution of insurance even if a dollar isn't paid out? What higher motive can any man have than to take out a life insurance policy for the benefit of wife and children? Having done that can't he face the problems of the day with greater courage? Can't he throw his shoulders back and keep his chin up because he knows that when the "Grim Reaper" may take him away, there is something that is going to help wife and children? Isn't the freedom from worry, isn't the confidence that is bestowed on the man by reason of having taken out that insurance, particularly if it be in a good company, something worthwhile? Hasn't the institution of insurance done something even though it hasn't paid out a dollar in that it has made sure for that man the feeling that, whenever anything may happen to him, wife and child are going to be taken care of? Is there anything in this whole world, any word, that means more to us than "home?" Is there any dearer word in the English language than that? Those of us who may own our own homes, don't we have a greater sense of security if we have a good fire insurance policy so that, if by any chance fire may come and destroy the house, we know there is going to be the means to build a new home? Don't we go about our every-day problems with a greater confidence knowing that we have got the right, if it is a policy in a good company, to rely on that insurance policy? Wholly apart from the fact that these companies make actual payments, isn't the ability to pay money which stands back of their policies something that makes the institution of insurance just as useful as it is when the company may be called upon to pay something? Isn't it worth a great deal to every one of us to know that we have behind us, in the event anything may happen to us, a proper accident policy, so that, if perchance we are not able to earn our regular salaries, there is something which is coming from an insurance company which may make up for the lack of income?

In other words, isn't there something, therefore, behind insurance and behind the companies which is of infinite worth and usefulness in the sense of security given each one of us who has taken the pains to pick out a policy of the right kind of insurance in the right kind of company, and can anybody say that such an institution is without usefulness? Can anybody say that it is something we should go without when we can point to an institution which brings to people that tremendous freedom from worry, that freedom from care, and thereby enables them to go about their business, certainly with greater cheerfulness if not with greater confidence?

Nor is that all that is done in these days by the insurance companies. Have you ever stopped to think (I won't quote more figures to you, not even in your capacity as actuaries) of the astonishing amount of money that is given for saving life and for lengthening life? What greater work is done than that of the Metropolitan Life Insurance Company in those marvelous pamphlets which tell about health and disease? It is not part of their business, perhaps, to do that, but it is an humanitarian service which is of infinite benefit to all who read, and not merely to their own policyholders.

To-day the work done in the way of accident prevention by the casualty companies—the safety engineering, the inspection work done in connection with boilers, all done with the purpose of saving life, of preventing accidents,—are they not useful services? And the fire inspection that is done by the fire companies, can that be said not to be useful?

I call your attention to these facts so that we may be sure that the institution of which we are a part is a useful one. And we must never forget those words of Dickens: "It is well for a man to respect his own vocation whatever it is, and to think himself bound to uphold it, and to claim for it the respect it deserves."

CURRENT NOTES

THOMAS O. CARLSON, CURRENT NOTES EDITOR

AUTOMOBILE

Preferred Risk Rating Plan — New York

The outstanding development in the automobile business in 1938, aside from the introduction of the Safe Driver Reward Plan which has been reported in previous issues of the *Proceedings,* was the adoption of the Preferred Risk Rating Plan in New York State, effective on December 1, 1938. This plan, applicable to bodily injury and property damage liability insurance for private passenger automobiles, was developed through the joint efforts in conference of the respective groups of carriers writing business in the state. Provision is made for the classification of drivers into three groups according to their loss experience. The experience period, extending over one year and nine months, begins two years prior to the effective date of the policy and ends three months prior to that date. If during the experience period the driver has had no accidents or one involving property damage only, he is charged Class A rates, which are the rates printed in the manual. If the driver has one accident involving bodily injury only or one accident involving bodily injury and property damage he is charged Class B rates, which are 10% higher than Class A. The Class C driver, whose loss experience is such that he can qualify for neither Class A nor Class B, is charged rates 15% higher than Class A.

Rate Revisions

Automobile bodily injury and property damage liability rate revisions were made effective in the majority of the states during 1938. The manual rate level for private passenger cars was reduced in most of these states, resulting in an overall reduction. The manual rate level for commercial cars on the other hand was increased in most of the states, but the effect of the reduction in New York State was sufficient to produce no change in the countrywide manual rate level. In most of the states where the manual rates for private passenger cars were left unchanged, the introduction of the Safe Driver Reward Plan constituted an effective reduction in the rates charged the car owner.

Financial Responsibility Legislation

The only financial responsibility law newly enacted in 1938 was in the state of Illinois, this act becoming effective July 12, 1938. This was the 29th state in addition to the District of Columbia to adopt such a law. Minor changes were made in the existing laws in Massachusetts, New York and Virginia.

BURGLARY

New Types of Coverage

The burglary underwriters have developed an all risk policy covering the securities deposited with a public official. This policy is written to the owner of the securities. As illustrations of the type of insureds who might have need for such a policy may be cited insurance companies depositing securities with a state insurance department or banks putting up securities to guarantee deposits of the state or a political sub-division thereof. The policy covers securities on deposit against all risks while in the custody or control of the public official.

Certain other policy forms have been broadened to some extent but no fundamental changes in coverage have been made.

Rate Changes

The rate tables for residence burglary, robbery, theft and larceny insurance in New York State were completely revised in the early part of 1938, the revision resulting in a reduction in the rate level for the entire state. Most of this reduction resulted from decreases in the rates for additional amounts of insurance above $1,000, although the rates for the first $1,000 were also reduced in certain territories.

At the same time, the rates for personal hold-up insurance in New York State were substantially decreased.

Outside of New York State, a substantial reduction in bank robbery rates was made effective early in the year by providing that the lower rates, which formerly applied to amounts of insurance over $10,000, should apply to all amounts of insurance over $5,000.

Liability Other than Automobile

Boards of Education

Special endorsements have been evolved to cover the liability of boards of education, teachers and supervisors in the states of New York and New Jersey. Laws enacted in these states have changed the common law to the extent of specifically requiring the boards of education to "hold harmless" teachers, supervisors and certain other employees in case suit is brought against them for injuries sustained by pupils or other individuals in or about the school premises. To come within the provision of these laws, the teacher or other employee must have been acting in the discharge of his duties within the scope of his employment and under the direction of the board of education.

Rate Revisions

The only revision of rates of any importance made effective since the last issue of the *Proceedings* is the general revision of employers' liability and voluntary compensation rates in the states of Oregon and Washington. The rate levels in Washington were left approximately unchanged whereas the rate levels for the two coverages in Oregon were brought closer together. Because of the sparseness of classification experience, revised rates reflect to a great extent the classification relativities indicated by the schedule of California workmen's compensation rates.

Workmen's Compensation

Rate Revisions

The downward trend of workmen's compensation loss ratios noted in the *Proceedings* a year ago continued for the third successive year. The annual report of the National Council on Compensation Insurance for 1938 disclosed that reductions in rate level were made effective in 27 states, with individual reductions ranging as high as 17.5%, while increases in rate level were made effective in only 8 states.

Retrospective Rating Plan

An additional option has been afforded the assured under the workmen's compensation retrospective rating plan. This is a provision for the waiver of the retrospective premium in excess of the standard premium for a consideration based upon a percentage of the standard premium. Such waiver may be made for the entire excess retrospective premium, or for only part of such excess, depending upon the arrangement between the carrier and the insured. This option was made effective generally in those states which have approved the plan after it had been made a condition of the approval of the plan in two jurisdictions.

The plan was approved in five additional jurisdictions in 1938, making thirty jurisdictions in which it is now effective. These five new states are California, Louisiana, Michigan, New Hampshire and Texas with effective dates ranging from July 1, 1938 to January 1, 1939.

The plan was extended to apply to risks down to $1,000 in Michigan and down to $2,000 in New Hampshire, and was approved on an intra-state basis only in California, Michigan and Texas.

In addition, in the State of Florida, the plan was extended to apply down to risks of $1,000 premium, effective January 1, 1939.

Experience Rating

While the results of the investigation of the experience rating plan by the committees of the National Council on Compensation Insurance are not yet publicly available, one development in experience rating in New Jersey during the past year is worthy of comment. The expected loss factor used for determining expected losses in the experience rating of risks has been increased several points above the standard permissible loss ratio. This is equivalent in effect to the introduction of a differential between experience rated risks and non-experience rated risks, and the resulting deficiency in rate level is made up by a factor included in the manual rates.

Payroll Audit Reference Book

A new undertaking of some interest and importance in the workmen's compensation field was the preparation and publication by the National Bureau of Casualty and Surety Underwriters of a loose-leaf manual of instructions for the use and guidance of company payroll auditors.

This manual centralizes formulation of instructions and required information and, it is anticipated, will introduce uniformity in the information required by field auditors.

The manual includes separate sections devoted to such matters as rules relating to executive officers, proper monetary values assignable to board and lodging, treatment of problems involving bonuses, tables and procedure respecting cancellation of policies, extra territoriality provisions of the acts of various states, and additional tables of compilations giving in convenient form information of value to payroll auditors in the field.

Additional sections in process of preparation will include sections devoted to rulings and interpretations issued by the respective jurisdictional organizations, procedure ruling to data to be obtained on automobile fleet adjustments, and other items.

Personal Notes

Stuart F. Brown is now Assistant Statistician of the Indemnity Insurance Company of North America, Philadelphia, Pa.

James M. Cahill is now Associate Actuary of the Compensation Insurance Rating Board, New York.

William J. Constable, Secretary of the (American) Lumbermens Mutual Casualty Company, was transferred from the Philadelphia Office to the office of the company in New York.

William H. Crawford, Assistant Secretary of the Commercial Casualty Insurance Company and the Metropolitan Casualty Insurance Company of New York, has also been made Assistant Secretary of the Firemen's Insurance Company of Newark, New Jersey, and has been transferred to the Western Department of the Loyalty Group in Chicago, Illinois.

Joseph B. Glenn has been made Chief Actuary of the Railroad Retirement Board, Washington, D. C.

Charles H. Holland has become associated with Bennett & Palmer, members of the New York Stock Exchange, in New York.

Robert S. Hull is now connected with the Office of the Actuary, Social Security Board, Washington, D. C.

Mark Kormes has been made Assistant Director of Training and Organization of the New York State Insurance Fund.

Stewart M. LaMont has been retired as Third Vice-President of the Metropolitan Life Insurance Company, and resides in New Rochelle, N. Y.

Kenneth B. Piper is now Actuary of the Provident Life and Accident Insurance Company, Chattanooga, Tenn.

Dudley M. Pruitt resigned from the Pennsylvania Indemnity Corporation to become Statistician of the Firemen's Fund Indemnity Company, New York.

John B. St. John is with the Bureau of Old-Age Insurance, Social Security Board, Washington, D. C.

George I. Shapiro has been elected First Vice-President and General Manager of the Public Service Mutual Casualty Insurance Corporation, New York.

William A. Granville, heretofore Director of Publications, has been elected Vice-President of the Washington National Insurance Company of Evanston, Illinois.

H. E. Economidy is Comptroller of the United Employers Casualty Company of Houston, Texas.

Gilbert E. Ault is now Actuary of the Church Pension Fund and the Church Life Insurance Corporation in New York.

J. M. Woolery is the Actuary of the North Carolina Insurance Department.

John L. Barter has been advanced from Assistant Secretary to Secretary of the Hartford Accident and Indemnity Company.

S. F. Conrod is the Associate Actuary of the Loyal Protective Life Insurance Company of Boston.

LEGAL NOTES

BY
SAUL B. ACKERMAN
(OF THE NEW YORK BAR)

ACCIDENT—PREVIOUS ACCIDENT

[Maryland Casualty Co. *vs.* Hazen, 79 P. (2d) 577.]

The insured who was covered by an accident policy was a policeman and while so employed suffered a sunstroke. As a result he was totally and permanently disabled. The terms of the policy provided in part as follows: "Maryland Casualty Company . . . does hereby insure employees of the . . . police department . . . subject to the conditions, provisions and limitations herein contained, against bodily injury caused during the term of this policy, directly and exclusively of all other causes, by external, violent and accidental means as follows:"

The evidence also showed that the insured had previously suffered a head wound and had been advised to keep out of the sun. The company denied liability, claiming that sunstroke was not an accident and that if it was it was not exclusive of all other causes by external and violent means.

The court held that a sunstroke was within the terms of the policy. With reference to the previous head injury, the court held: In a strict or literal sense, any departure from an ideal or perfect norm of health is a disease or an infirmity. Something more, however, must be shown to exclude the effects of accident from the coverage of a policy. The disease or the infirmity must be so considerable or significant that it would be characterized as disease or infirmity in the common speech of men.

To go further and hold that a predisposition which does not amount to a disease is a contributing cause so as to prevent a recovery would be to encounter many difficulties. Hardly any accident could occur but what some predisposition, fancied or otherwise, might be found. The field should be limited to disease which contributes to one accident. There was no evidence of such a disease and therefore the company was liable.

AUTOMOBILE—USE, LIEN

[Pauli *vs.* St. Paul Mercury Indemnity Co., 4 N. Y. S. (2d) 41.]

The defendant sold and delivered to one Kenneth Carncross an automobile bodily injury and property damage policy. During the policy period the insured was involved in an automobile accident. Actions were thereafter brought against the insured. The actions were defended by the present defendant insurance company under a full reservation of rights. The trials resulted in judgments.

The policy was written upon a combination policy form and various of the provisions in the blank apply only to coverages (therein designated as A and B) for bodily injury and property damage while others apply to the remaining coverages (therein designated as C, D, E, F, G, H and J) and still other provisions apparently apply to all coverages. In this case, the only coverages written were A and B.

In the declarations attached to and forming a part of the policy, it is stated, "The purposes for which the automobile is to be used are: 'Business and pleasure,'" and by item 6 of the policy such purposes are defined as follows: "(a) The term 'pleasure and business' is defined as personal, pleasure, family and business use."

By reason of the restrictions found in the Insurance Law, two insuring companies appear upon the policy form, the defendant company being the insuring company for coverages A and B, and a fire insurance company being the insuring company for the balance of the coverages set forth in the policy, but none of the coverages being insured thereunder, the fire insurance company had no liability thereunder.

The policy provided: "5. State amount of lien, mortgage or other encumbrance, if any—None." And "8. The Named Insured is the sole owner of the automobile except as herein stated: No exceptions."

The insured purchased his automobile under a conditional sales agreement and there was due and owing on the same at the time of the issuance of the policy the sum of $500.

It appears that the insured was a volunteer fireman and that on the occasion of the accident insured was preceding a fire truck from another district in his own car, piloting or leading the fire truck to the fire.

The defendant contends that such use was not within the definition of "business and pleasure" as defined in the policy.

The defendant also contends that the statements in the declarations were not true and that they constituted misrepresentations and that it is relieved of liability under the policy.

The policy also refers to "Exclusions," which reads in part as follows: "This policy does not cover (e) . . . (5) While subject to any lien, mortgage or other encumbrances not specifically described herein."

The court held that although a volunteer fireman the insured's use of his automobile, even in his duties as such a fireman, was nevertheless a personal use.

Furthermore the policy is not against loss of the automobile or damage thereto. The policy is an indemnity contract against liability of the insured for damages on account of bodily injury and property damage resulting directly from "the ownership, maintenance or use" of the described automobile. Encumbrances on, and ownership of, the automobile are not in any manner misrepresentations affecting the risk of bodily injury and property damage assumed by the defendant.

As the policy written covers liability for bodily injury and property damage arising out of the "ownership, maintenance or use" of the automobile described in the policy, the exclusion above referred to only refers to a policy covering collision, fire or theft and has no relationship to liability imposed by reason of "ownership, maintenance or use."

Blanket Bond—Limit of Liability

[Hack *vs.* American Surety Co. of New York, 96 F. (2d) 939.]

The defendant surety company, in October, 1922, issued two bonds to a bank, each for the face amount of $25,000, one primary, and one to cover excess loss. They were thereafter renewed annually, and expired in October, 1926. The bank, of which plaintiff was appointed successor receiver on March 1, 1933, closed in October, 1930. The losses arose by reason of various fraudulent and irregular practices of the bank's president and secretary.

An Indiana statute requires bank officers to be bonded. The section reads:

"No president, vice-president, treasurer, or secretary, or other active officer of such company, shall enter upon the discharge of his duties until he shall have executed a bond to the company, conditioned for the honest and faithful discharge of his duties, in such sum and with such surety or sureties as may be approved by the board of directors, nor until such bond, so approved, has been filed in the office of and approved by the bank commissioner of the State of Indiana; Provided, however, such individual bond shall not be required of any such officer if a blanket bond covering all the active officers and employees of such company, in an amount and with a surety or sureties approved by the board of directors, shall have been filed in the office of and approved by said bank commissioner . . ."

The bank was organzied on Mar. 8, 1912. J. Edward Morris was elected president from 1918 to 1930. In the period from 1924 to 1926 he fraudulently obtained $75,000 with the aid of the bank's secretary.

The following are some of the legal issues which were raised:

(1) Were defendant's "blanket bonds" "statutory bonds"? Are they "official" bonds subject to rules of construction applicable to such bonds?

(2) If "statutory" bonds, does the fact that they are in the Indiana statute specifically covered in the proviso, free them from conditions heretofore held by the Indiana Supreme Court to inhere in statutory bonds; namely, inhibition against imposing periods of limitation of liability.

(3) How is amount of the loss, if any, to be determined? Shall entire amount of fraudulent transactions be recovered?

(4) Are the bonds to be treated as annually cumulative in coverage or only for $25,000 per policy no matter how many years they were in force?

The court held that the bonds involved are statutory and official bonds. The statute required a bond to be given and these were the only bonds procured. The statute provided for approval by the board of directors and filing with the State Bank Commissioner. These bonds were approved and were filed (at least the renewals) with the Bank Commissioner. The statute required the bond to cover "honest and faithful" discharge of duties; the bonds covered "dishonest" acts. These facts indicate an intention to take a course pursuant to that prescribed by the statute.

Since the bond therein is a statutory official bond, the statute rather than the restricted written contract of the parties measures the liability of the surety. Regardless of its language it covered dishonest and unfaithful discharge of officers' duties. This also applies to the efforts of the surety to restrict its liability by fixing a time limit within which an action must be instituted. The Indiana statute of limitations, not the shorter period specified in the contract, must govern the time within which action should be brought or barred.

Should each bond be treated as cumulative? Or should each bond be limited to the sum of $25,000? The District Court accepted the theory, of the plaintiff and allowed a total recovery of $120,917. This was made up as follows:

	Primary Bond	Excess Bond
1923-24	$24,480	$ 25,000
1924-25	25,000	
1925-26	25,000	
		$ 99,800
	6% interest	21,417.94
		$120,917.94

The maximum recovery under the defendant's theory would be $50,000 and interest. That is $25,000 for the primary bond and $25,000 for the excess bond.

A clause of the contract provides that, "in no event shall the aggregate liability of the Surety for any one or more defaults of the principal during any one or more years of the suretyship under the bond hereinabove referred to, as extended by this or any other extension thereof, exceed the amount specifically set forth in said bond . . . ." This language indicates an intent by the parties to limit the surety's liability to $25,000 on each bond.

Since the full liability on each bond was reached when a default of $25,000 was shown on each bond, premiums paid thereafter must be returned by the company.

COMPENSATION—EMPLOYEES

[American Mutual Liability Insurance Co. *vs.* Duesenberg, 14 N. E. (2d) 919.]

Fred S. Duesenberg was on July 2, 1932, vice-president of Duesenberg, Inc., a corporation, and had devoted his entire time to its engineering and experimental work. He met his death in an automobile accident on the above date while in the discharge of duties directed by the corporation. The appellee, as his widow, instituted a proceeding for benefits under the Indiana Workmen's Compensation Act. That proceeding was ultimately appealed to the Appellate Court of Indiana, which held that the decedent was not at the time of receiving the injuries which resulted in his death an employee of Duesenberg, Inc., within the meaning of the Compensation Act. Compensation was accordingly denied.

After the final determinatoin of the above-mentioned case by the Appellate Court, the appellee, the widow of the deceased, instituted the present action. The complaint charges that the appellant herein issued to Duesenberg, Inc., a standard workmen's compensation and employer's liability policy, which was in effect at the time of the death of Fred S. Duesenberg; that the premiums for the policy were based on the remuneration paid by the corporation to its employees, including the salary of Fred S. Duesenberg as vice-president, and its other executive officers. The initial insuring clause of the policy states, in effect, that the risk assumed is in respect to "personal injuries sustained by employees." Among the many provisions of the policy was paragraph V, as follows: "This agreement shall apply to such injuries sustained by any person or persons employed by this employer whose entire remuneration shall be included in the total actual remuneration for which provision is hereinafter made, upon which remuneration the premium for this policy is to be computed and adjusted, and also to such injuries so sustained by the president, any vice-president, secretary or treasurer of this employer, if a corporation. The remuneration of any such designated officer shall not be subjected to a premium charge unless he is actually performing such duties as are ordinarily undertaken by a superintendent, foreman or workman." The appellee asked for a judgment based upon the schedule of benefits prescribed in the compensation act.

The court held that the contract sued on discloses on its face that it was primarily a workmen's compensation policy, purchased by Duesenberg, Inc., and issued by the appellant in compliance with the statute requiring employers to carry insurance. But it is apparent from the face of the policy that it is not limited to the compensation risk. Its scope, as disclosed by its very title, is that of a "Standard Workmen's Compensation and Employer's Liability Policy."

To interpret the policy as one limited to the compensation risk would require the placing of a narrower meaning upon the word "employees," as used in the general insurance clause, than was apparently intended, and would call upon the court to restrict paragraph V to a significance that could not be harmonized with the language employed therein. On the other hand, if paragraph V is accepted as assuming an additional risk for officers and, at the same time, construe the word "employees," as used in the general insuring clause, according to its broad and general meaning, rather than as that term is defined in the compensation statutes, practical effect is given to every provision of the policy and none destroyed. Therefore the company was liable.

Employers' Liability—Assignment

[Southwestern Bell Tel. Co. *vs*. Ocean Acc. & Guar. Corp., Ltd., 22 F. Supp. 686.]

This suit is an action on a liability insurance policy. It was alleged in the petition that the defendant was engaged, among other things, in the writing of employer's liability insurance, and that, on November 16, 1924, it wrote such policy upon the Kansas City Telephone Company. This policy was effective for three years, which means its termination by expiration on November 16, 1927.

On January 22, 1927, almost one year before the termination of the policy, the affairs of the Kansas City Telephone Company were taken over by the plaintiff, Southwestern Bell Telephone Company. The latter company took over all of the assets of the first named company and assumed all of its liabilities. By this arrangement, the policy in suit did not become effective as an executory contract on the future operations of the Southwestern Bell Telephone Company, but, as stated informally by counsel, it specially insured the new corporation, and, at that date, the policy terminated on the Kansas City Telephone Company as an employer for the reason that it discontinued its business.

At a later date three different parties who had been employees of the Kansas City Telephone Company made claims for damages against the plaintiff, Southwestern Bell Telephone Company. These claims, however, were for damages which they asserted accrued to them while employed by the Kansas City Telephone Company. The dates of such accrual of liability were fixed within the time that the defendant's contract of liability insurance was effective on the Kansas City Telephone Company, that is to say, some time after the 16th of November, 1924, and prior to January 22, 1927.

The defendant was notified, but denied liability on account of such claims, and the plaintiff was compelled to investigate and make settlement thereof. This duty, it is asserted, devolved upon the defendant, and that, because of its breach of its obligation, this suit was instituted to recover for expenses which included charges for the plaintiff's salaried attorneys and payments made to discharge the claims.

The defendant by its answer denied the right of the Kansas City Telephone Company to transfer a policy or the liabilities thereunder to the plaintiff. It asserted that such contracts were personal and that such transfer could not be made without its consent.

The court held that a provision in a policy against assignment does not apply to assignment after loss, and a specific provision against such an assignment would be null and void, as inconsistent with the covenant of indemnity and contrary to public policy.

It would be a harsh rule for the courts to promulgate to the effect that, an employer carrying employers' liability insurance having transferred its assets to another employer which assumed the liabilities of the transferer, the insurance carrier would be excused from meeting its obligation on losses occurring prior to the transfer, unless asserted by the transferer or assignor.

The charges made for the time employed by its salaried attorneys in investigating and otherwise working on the cases is a correct element of damages.

FIDELITY BOND—NOTICE

[United States Shipping Bd. M. F. Corp. *vs.* Aetna Cas. & S. Co., 98 F. (2d) 238.]

The United States shipping board brought an action in 1929 against the Aetna Casualty & Surety Company upon a bond dated January 27, 1920. Sigsbee Humphrey & Company, Inc. (hereinafter referred to as Sigsbee), was the principal obligor and the Aetna Company was the surety.

The Board and Sigsbee prior to the 27th of January, 1920, entered into written agreements for the operation and management by Sigsbee of certain vessels turned over and assigned to it by the Board. These agreements authorized Sigsbee to perform all the customary duties of managing and operating the vessels. The agreements required Sigsbee to deposit all moneys collected on behalf of the operation in a national bank in the name of the Board, "which moneys shall be the property of the Corporation," but subject to check by Sigsbee and also by the Board. Sigsbee was required not to mingle the moneys from operation with its own moneys, but to make from the trust deposit all disbursements authorized to be made for the account of the operation of the ships and to render a full account to the Board of all moneys received. All the agreements provided that Sigsbee should furnish a bond for the faithful discharge of its duties in an amount satisfactory to the Board which the defendant furnished.

Sigsbee misapplied and wrongfully and fraudulently appropriated funds belonging to the plaintiff. The bond provided written notice to the home office of the surety within thirty days after the discovery of any evidence which might form the basis of a claim. Notice was given by the plaintiff in 1928 by the Board.

The Board insists that the bond is a performance bond and not a fidelity bond; that the contract and the bond should be read together, and so read, construed as an absolute guaranty of indemnity, maturing only upon a final audit and accounting and a demand thereon. In these circumstances, the Board says notice of irregularities is not required.

As another ground, the Board says that even if it should be held that notice is required of the default within the time limit of the bond, the requirement is not a condition precedent but a covenant, requiring the deduction of loss only to the extent that the surety may show damages because of failure to give the notice.

The court held that the bond is a fidelity bond and not a performance bond and viewed in that light it is, of course, of the highest importance to the surety to get prompt notice of a claim in order that all proper steps may be taken by it to reduce its loss. By almost universal custom fidelity bonds as now written require notice of default within a limited period of time, and that provision the courts enforce according to its strict terms. And in such a case it is immaterial whether the surety is able to show it was prejudiced by failure to receive notice, for the contract is enforced in accordance with its terms, and the question of prejudice does not affect the result. Notice is of the essence of the contract, and compliance with its terms is indispensable to fix liability.

The Shipping Board was in possession of facts, in 1922, which from its point of view indicated that Sigsbee had improperly withdrawn moneys from the trust fund account, and it is these same withdrawals which the Shipping Board, without timely notice to the surety, is now seeking to recover. Since the Board had the evidence in 1922 it was its duty to bring the facts within its knowledge to the attention of the surety, and this obligation was a condition of the bond—doubtless in order that the surety might itself investigate and, as far as it could, then and there indemnify itself against loss. In these circumstances it would be to make a new contract for the parties to permit a recovery now, on the theory that the bond was one as to which liability accrued only upon a final accounting.

Notwithstanding noncompliance by the Board with the condition in its contract with the surety as to notice, the Board contended that the action may be sustained on the theory of waiver. The basis of this contention is that after receipt of the Board's communication of April 3, 1938, the surety under date of October

3rd notified the Board that it was in process of investigating the state of accounts between the Board and Sigsbee, and on January 4, 1929, following, advised the Board that, having made a careful investigation of the whole matter, it was of opinion that there had been no misappropriation. In denying liability, however, the surety company specifically also relied upon the failure of the Shipping Board to give the notice required by the bond. The court held that in this case there is nothing to show that when, in 1928, the belated notice was given to the surety it knew or had reason to suspect that the Shipping Board had had knowledge of the alleged defalcation ever since 1922. The notice to it from the general counsel of the Shipping Board made the matter to appear as then for the first time discovered. To say that under these circumstances the company, in accepting the notice and making its own independent investigation of the facts and then declining liability on the ground there had been no defalcation, thereby waived the notice condition of the bond, would be contrary to the general rule. Here, in addition, the denial of liability was predicated as much upon the failure to give notice as it was upon the lack of merit in the claim. In such circumstances there is neither waiver nor estoppel.

Malpractice Liability—Membership in Dental Society

[United States Fidelity & Guaranty Co. *vs.* Fridrich, 198 Atlantic 378.]

An insurance company issued to dentists two classes of liability insurance policies; (A) to those who were not members of the state dental society; (B) to those who were such members. The premiums charged for class A policies were in excess of the charges for class B. The defendant applicant applied for a class B policy and "represented" that he was a member in good standing in the state dental society. This representation was made a part of the contract of insurance and was recited as being a part of the consideration for the issuance thereof. The policy was renewed from time to time without requiring a new application for the renewals. The renewal vouchers were issued subject to all of the policy "terms, limits, and conditions." At the time of the latest renewal of the policy the dentist was not a member of the state dental society as he had been suspended for non-payment of dues. However, he did not disclose this fact. During the policy period, the dentist was sued for malpractice. The company denied liability on the ground of misrepresentation and moved to cancel his policy.

The defendant dentist contended that the representation made by him that he was a member of the dental society must be considered as referring to his status at the time of the making of the application and not as to the time of any renewal or renewals of the original policy.

The court held both parties contracted for a certain status, i.e., membership in the state dental society, and the insurance was to cover members and not non-members. This the insured, the defendant in this case, was fully aware of, as is evidenced by his letter making application for the insurance at a reduced rate by reason of the fact that he was "affiliated" with the state dental society. The defendant knew, or was charged with knowledge, that upon non-payment of dues he became automatically a suspended member of the state dental society and that until that which caused the suspension was corrected, he ceased to be one of the class to whom policies would be issued by the issuer at the premium charged the defendant.

The renewal form continued the policy in force "subject to all of its terms, limits and conditions." Since one of the terms and conditions was membership in good standing in the dental society, the defendant, by accepting the renewal voucher, represented, as he had in the original application that he was a member in good standing at the time of the issuance of the renewal.

In view of the fact that a part of the consideration for the policy was membership in the state dental society and when this condition of membership did not exist the consideration failed. The insurance company was entitled to cancellation of the policy.

Owners', Landlords' and Tenants'—First Aid

[Alsam Holding Co. *vs*. Consolidated T. Mut. Ins. Co., 4 N. Y. S. (2d) 498.]

The plaintiff, Alsam Holding Company, Inc. was the owner of a residential and store building. The defendant insurance company issued to the plaintiff corporation what is known as an

"Owners', Landlords' and Tenants' Public Liability Policy." A relative of the insured was injured on the premises covered by the policy on October 10th and notice was given to the company on October 21st.

A physician was called on the following day. He found the patient who was over eighty years old in a state of shock, and diagnosed the case as a possible fractured femur. Bedside X-rays were arranged for, which, promptly taken and promptly developed, confirmed the diagnosis. The physician was of the opinion that immediate surgical attention was necessary. A family debate ensued, in which the plaintiff's three officers participated, as to whether hospitalization was advisable, in view of the advanced age of the injured person and of his weakened condition. The advice was sought of two experts (not related to the family), one an orthopedic surgeon, the other a consultant. In their opinion, immediate removal to a hospital and a reasonably speedy operation were necessary to prevent death, notwithstanding the serious danger to life involved in the bodily transfer itself. Between 9 and 10 in the evening of December 11th, the injured man was removed in a private ambulance to a hospital.

At the hospital, temporary treatment was given the patient in the form of traction, as well as to reduce the shock concurrent with the fracture sustained as a result of the accident. Prompt preparations were made, too, for a major operation to reduce the fracture. This operation was performed on December 15th at the hospital by the orthopedic surgeon previously consulted, and who had assumed charge of the case on December 11th. The operation involved, among other things, cutting into the leg and binding the broken pieces of bone with a silver nail. The insured demanded reimbursement for money expended for medical services to the injured, claiming these expenditures were for first-aid treatment.

At the time of the trial, held on the 17th and 18th days of February, 1938, the injured was still at the hospital, receiving treatment, undergoing examinations—physical and roentgenological. It was the opinion of the doctors, given at the trial, that it would be safe for the patient to leave the hospital about two weeks after the trial, and that it would probably not be safe for him to leave earlier.

The agreements of the defendant, contained in the policy, were "Subject to the Following Conditions"—A through T, being twenty in number. Condition "D," provided for "Cooperation of Assured" in the following language: "The Assured shall cooperate with the Company and upon the Company's request shall assist in effecting settlement, securing evidence and the attendance of witnesses and shall cooperate with the Company, except in a pecuniary way, in all matters which the Company may deem necessary in the defense of any suit or in the prosecution of any appeal, but the Assured shall not interfere in any negotiations for settlements, nor in any legal proceeding, nor voluntarily make any payment, assume any obligation or incur any expense other than for immediate surgical relief, except at his own cost."

The plaintiff sued for expenses incurred on behalf of the injured. The defendant argues that the plaintiff is not entitled to recover for the expenses incurred as they were not for immediate surgical relief of the injured and also because the plaintiff failed to give due notice of the accident as required by the terms of the policy.

In the present case, the notice required to be given to the insurance company is referred to in two clauses of the policy. One of them (clause E) requires "immediate written notice of any accident," unless "it shall be shown not to have been reasonably possible to give such notice" immediately. The other clause (c) requires that notice shall be given the company "in the event of accident" as soon as reasonably possible thereafter.

The court held that the policy was prepared by the defendant, and, in case of ambiguity, must be construed against it. Under the terms of the instant policy, "notice within a reasonable time after the accident" is the notice contemplated therein—not instantaneous or immediate notice.

Notice to the defendant on the 21st of an accident that occurred in the evening of the preceding 10th, is not inadequate notice within the meaning of the notice clauses of the present policy.

There is a question whether notice in the policy as having the same meaning and efficacy, irrespective of whether considering the defendant's liability to defend and indemnify or its duty to reimburse for expenditures for immediate surgical relief. There is a distinction between these two obligations of the defendant which definitely makes for a differentiation in the time element applicable to the notice clause, as well as in the effect of delay in giving notice. Where the defendant must investigate, preserve evidence, negotiate, defend, and indemnify, it is quite understandable why prompt notice is required. Not so prejudicial is delay in giving notice where what the defendant must do is reimburse for expenditures already incurred. The purpose of requiring notice is obviously more rigorous in one case than in the other; and therefore the rule of law should be less rigorous in the latter case than in the first.

What is "immediate surgical relief" is ordinarily a question of fact, to be determined in view of all the circumstances. Two issues are raised. How soon after the accident must the relief begin? How long after the accident may the relief continue?

This clause is not necessarily limited to first aid treatment; but, in the absence of a more definite terminology, its intent and scope must depend upon the nature and circumstances of the accident.

"Immediate surgical relief," does not exclude surgical attention given immediately upon ascertaining the need therefor within a reasonable time of the accident. The fact, therefore, that X-rays were not taken and the injured man was not removed to a hospital until the day following the accident does not preclude the treatment thus given from being "immediate surgical relief" within the meaning of the policy, under the circumstances of this case. The purpose of the clause—to protect the interests of the insurance company by mitigating the injuries—and thus to diminish the possible claim for damages—is best served by this construction.

Nor does the fact that the major operation took place at the hospital five days after the accident warrant the contention that, as a matter of law, the surgical relief was not "immediate" within the meaning of this clause. Prompt removal to the hospital was mandatory, in the professional opinion of medical experts. The patient's age, the seriousness of his injury, the attendant shock, all required preparations to be made for the more serious phase of the surgical relief. Pending this operation, medical attention was accorded the patient by way of traction to reduce the fracture, and care to reduce the shock.

Therefore, (1) bedside X-rays, (2) hiring of the ambulance to take the injured from home to the hospital, (3) confinement in the hospital from December 11th until at least January 21st (why not beyond that date is hereinafter explained), (4) urinalysis, (5) use of the operating room, (6) anesthesia, (7) X-ray photographs taken on the day of the operation, (8) diagnosis, operation, and attendance services were necessary as a part of the immediate surgical relief contemplated by the policy.

The patient in the present case was in the hospital from December 11, 1937, until the time of the trial, February 17 and 18, 1938, and it was expected that he would remain there for about two weeks longer. On January 10th an X-ray photograph of his right hip was taken, and again on the 21st of that month. The patient was then undoubtedly able to move about, because, on January 21st, crutches were purchased for his use, although he remained in the hospital for some weeks thereafter at the expense of the plaintiff, and during that period X-ray photographs were taken again. These things may have been necessary for the proper treatment of the case, but they do not come within the category of the immediate and the imperative.

This eliminates expenses for the hospital room and board subsequent to January 21st, and for the X-ray photograph taken February 11th. While the doctors gave it as their opinion that it would probably not be safe for the injured to leave the hospital until about March 1st, it is significant that there is no proof that the specialist continued in charge of the case until the trial, held some two weeks earlier. That is an indication that the immediacy of the surgical relief no longer existed.

ROBBERY—GAMBLING

[Demary *vs.* Royal Indemnity Co., 182 So. 389.]

Plaintiff who owned and operated a cafe alleged that at about 1 o'clock in the morning of August 11, 1935, two men entered the premises owned and operated by him, overpowered his employees and feloniously took and carried away money amounting to $699.75 in currency, coin and bank notes. There was one man actually within the premises at the time the burglary occurred and another custodian was a distance of approximately 400 feet away from the premises at the time of the robbery. Within 4 or 5 minutes after the highwaymen actually subdued the first custodian there was another custodian upon the premises who arrived before the burglary was completed and who was subdued and tied hand and foot.

The general agent of the defendant insurance company knew at the time the policy of insurance was written and delivered that the plaintiff also operated a gambling club run in the same premises in connection with his other business. A man named Tommy Campbell who could be discharged by the plaintiff was in charge of the gambling operations. The plaintiff furnished the capital and Campbell furnished his skill and work in a joint venture in which the latter participated on a percentage basis and also shared in whatever losses there might be.

The company denied liability on the following grounds: (1) Whereas the plaintiff declares in the policy that the business conducted in the premises was wholesale and retail liquors and small cafe, the fact is that it was not restricted to those operations, but included a gambling business as well. (2) Whereas the name of the insured is given as "Lake Charles Liquor Store and F. J. Demary," and further that the portion of the building occupied solely by him in conducting his business is represented to be his "entirely," the fact is that that part of the business in which gambling was conducted and from which the larger amount of money was taken, was owned by himself with another in a form of partnership. (3) The defendant further contends that with regard to the silver money amounting to the sum of $619.00 which was robbed, the contract of insurance is illegal, null and void, because that coin constituted gambling paraphernalia, and any contract by which plaintiff might attempt to recover would not be enforceable as it would be against public policy. (4) Whereas under the terms of the policy plaintiff had to maintain two custodians on duty, the facts developed that there was only one such custodian on the premises at the time of the robbery. (5) Plaintiff failed to keep a set of books and accounts as he was required to do under one of the declarations forming part of the policy.

The court held as follows: Under circumstances where the agent of an insurance company has full knowledge of the facts in connection with the issuance of the policy that the insured operated a gambling club room and the policy is issued, the insurance company cannot claim a forfeiture on the ground of misrepresentation.

The position of the person in charge of gambling cannot be viewed in any other light than that of an employee who, instead of working on a straight salary, was willing to take his chance on a percentage basis, and necessarily, if he was paid on such a basis, as the testimony shows, if on any occasion there was a loss, that loss was charged against him and he had to sustain his share of it. The important and controlling bit of testimony, however, which seems to repel the idea of a partnership, is that which shows that the plaintiff had the right at all times, to discharge Campbell as he saw fit.

The silver coin may have served to facilitate the gambling. Conceding that that part of it of which the plaintiff was robbed, had come in his possession under circumstances which the law prohibited, he nevertheless was the owner of it and had a right to protect himself against its loss by insurance, provided any insurer, like the defendant company, was willing to give him that protection. The mere fact that it was insured, did not tend to promote gambling and it is doubted that many, if any, of those who participated in the gambling that was being conducted knew, or were interested whether there was any such insurance or not.

The general rule may be said to be that if the effect of an insurance contract on property illegally kept or used is to promote or encourage the illegal acts or business in which such property is used, the contract is void as against public policy; but if such contract does not promote or encourage such unlawful acts or business, it is not void, although it may be collaterally connected with the unlawful acts or business.

There is nothing in the contract of insurance sued on in this case, to show that the policy was issued in the furtherance of a gambling business, nor that its issuance had any such effect. It is only in a remote and incidental way that it may be said to have any such connection with the business and under the rule as stated, it cannot be held to be void and without effect.

Although it is not specifically provided that the number of custodians shall be on duty at all times, it is presumed that this is the intention of this provision of the policy. It will be noted that there is nothing said about these custodians being within or upon the premises. Had the policy provided that the custodian must be upon or in the premises at all times, in the opinion of this court payment under this policy could have been avoided for a breach of this promissory warranty. Insurance companies who assume the risks such as was assumed in this policy of insurance have never been permitted to escape their liability by a mere quibble or by giving a false and unnatural interpretation to the policy which they write.

In view of the fact that there is no dispute whatsoever with regard to the amount of the claim, it is difficult to understand what purpose any detailed set of books or accounts such as the defendant contends should have been kept by the plaintiff, would serve. These accounts and records were not called for and produced in evidence, and therefore it is assumed that they were not for the very good reason that they must have been found to be correct and sufficient enough to "accurately determine the amount of the loss" which is not disputed.

OBITUARY

CLAUDE W. FELLOWS
1881 - 1938

Claude W. Fellows died at the French Hospital in San Francisco on July 15, 1938. He was president of the Associated Indemnity Corporation and the Associated Fire and Marine Insurance Company of San Francisco and of the Associated Insurance Fund, Inc., a holding company. He became ill in May while in New York on a business trip. Returning to San Francisco he entered the hospital where he was confined until his death.

Mr. Fellows was born January 8, 1881, in Muskegon, Michigan. He was educated in public schools in the Middle West and at the Kidder Institute at Kidder, Missouri.

Entering the casualty insurance business in the offices of a general agent of the United States Casualty Company in Chicago about 1902, he spent the next few years working in various capacities for general agencies in Chicago and San Francisco. On March 1, 1911, he became a special agent for the Royal Indemnity Company upon its entry into the State of California. Later he took charge of the Southern California branch office of the Royal, remaining there until November 1, 1913.

It was in that year that the principle of workmen's compensation was introduced in the State of California by the enactment of the "Workmen's Compensation, Insurance and Safety Act" which became effective January 1, 1914. The new law provided for the establishment of the State Compensation Insurance Fund, and Governor Hiram W. Johnson named Mr. Fellows as the first manager of the State Fund. Accepting this appointment, Mr. Fellows applied his talents and wide experience unstintingly to the task of developing an efficient and business-like administration, free from political intervention. He stood firmly for the principle that the only justification for the existence of the Fund was to guarantee a free market for compensation insurance on a sound basis. He was unalterably opposed to a state monopoly of the business, contending that competition from private carriers was absolutely vital to keep the Fund from degeneration. He insisted that the Fund should charge the same initial rates as other carriers, be subject to the same regulatory laws and pay the same premium taxes into the State Treasury. Under his guidance, the Fund grew and prospered and became known nationally as one of the outstanding organizations of its kind in the United States.

In 1922 Mr. Fellows left the State Fund and during that year organized the Associated Industries Insurance Corporation, of which he became president and general manager. Out of this beginning, there grew the group of companies which he headed at the time of his death.

Mr. Fellows was the author of the California law dealing with the regulation of compensation rates which, because of its carefully drawn provisions, has worked unusually well in practice. He was one of the founders of the California Inspection Rating Bureau, established in 1915, to carry out the requirements of the rating law. He represented the State Insurance Fund as a permanent member of the Governing Committee of the Bureau from the time of its formation in 1915 until he severed his connection with the Fund. Afterward he served on the same Committee, as a representative of the Associated Indemnity Corporation, continuously from 1929 up to the time of his death.

He was elected a Fellow of this Society in 1915. As his work was in the field of insurance administration and the organizations he directed were in the Far West, he did not take an active part in the affairs of the Society. He was, however, always in sympathy with its aims, as he was always ready to assist in the scientific solution of current problems facing the business.

By the death of Mr. Fellows, California has lost a distinguished pioneer in workmen's compensation insurance; one who saw the beginnings and took an active part in the development of this business in the state.

His career was, in itself, a demonstration of achievement through unusual talents and sound qualities.

Among outstanding features of his character were those affecting his association with co-workers and employees in whatever task was at hand. His keen enthusiasm for his undertakings and his power to inspire his associates with his own zeal, contributed to the solidarity and hence to the efficiency of his working force.

He maintained a relationship between himself and members of his staff which was remarkable for its fine human qualities, and was best fitted to foster smooth, efficient functioning of his organization. Through his sympathetic understanding and fairness in dealing with employees of whatever rank, he won and kept the devotion of his personnel. This he did apparently without effort or conscious plan; for such an upright, generous nature, it was the only way. Respected and beloved in life, he left uncommon inspiration to those who will carry on his work. His passing brought deep sorrow to his associates and many friends but our lives will always be enriched by memories of him.

OBITUARY

JAMES FULTON LITTLE
1872 - 1938

In the death of James Fulton Little on August 11, 1938, the whole actuarial profession has suffered a severe loss.

His career was an unusually varied one. He was born in Sydney, Australia, and educated in the public schools. Following employment in another line he became a junior clerk in the Mutual Life Association of Sydney. From this he advanced to become Assistant Actuary, and he was also Secretary of the West Australia Branch at Perth. While in Australia he took the examinations of the Institute of Actuaries of Great Britain and by passing these became in 1901 the first Fellow in Australia by examination.

When his company was absorbed by another company he went to London where he was a consulting actuary. There he met and was associated with such eminent actuaries as the late George King, Thomas G. Ackland, and Ralph Price Hardy.

From London he went to Mexico as Actuary of the Insurance Department of the Government of Mexico. After the outbreak of the revolution in Mexico he came to the United States and was employed by the Prudential, advancing through various actuarial offices to his appointment as Vice-President and Actuary in 1934 on the retirement of Mr. John K. Gore.

In 1912 Mr. Little became a Fellow of the Actuarial Society of America by examination. In 1934 and 1935 he was Vice-President of that Society and he was elected again in 1938, being Vice-President at the time of his death. He contributed several papers to the *Transactions* of the Society but his contributions to it appeared more in many valuable discussions during the twenty-six years that he was a Fellow.

In 1921 he was elected a Fellow of the Casualty Actuarial Society. While he contributed some discussions to the proceedings of the Society, his work was definitely that of life insurance and he was consequently less active in the Casualty Actuarial Society and made smaller contributions to its literature than in the Actuarial Society of America and the American Institute of Actuaries.

In 1924 Mr. Little became a Fellow of the American Institute of Actuaries. Here he won prominence through his valuable discussions of which there is a very long list. In the years 1930 and 1931 he was President of the Institute, and he was influential in its counsels and an outstanding member to the time of his death.

An account of Mr. Little achievements, positions, and honors such as has been given is only half of the picture. He was one whom his associates looked up to as a man as well as an actuary. An enjoyable companion, interesting whether in ordinary conversation or in actuarial discussion, considerate of others, he was one whom the actuarial profession of his adopted country could ill afford to lose.

OBITUARY

CHARLES GORDON SMITH
1886 - 1938

Charles Gordon Smith died on June 22, 1938. He was born on February 9, 1886, at Jamaica, New York. He came from an old New England family whose ancestors had come from Scotland. He was educated at Erasmus Hall High School, Brooklyn, New York, and also took special courses at Columbia and New York University. In 1903 he entered the employ of the Metropolitan Life Insurance Company and remained with that organization until 1907. In 1908 he was with the California Insurance Department. From 1909 to 1910 he was associated with the Puritan Life Insurance Company. From 1910 to 1911 he was State actuary of the Savings Banks Life Insurance of Massachusetts. In 1916 he became assistant actuary of the New York Insurance Department and in 1918 he became actuary. During the period from 1920 to 1925 he was in charge of the Rating Division of the New York Insurance Department. In 1925 he became the manager of the New York State Insurance Fund. During his administration, the New York State Insurance Fund grew in size until the organization became one of the leading carriers of workmen's compensation in the United States. From 1925 he represented the New York State Insurance Fund as a member of a governing committee of the Compensation Insurance Rating Board. He was an Associate of the Actuarial Society of America and a Fellow of the Casualty Actuarial Society. His interest in insurance was not merely limited to the life and compensation fields but he also took a general interest in the entire subject. He was a member of the Casualty and Surety Club and the Insurance Society of New York.

He was a student of foreign languages. He was able to speak the German, Dutch, French, Spanish, Italian and Esperanto languages. He also was interested in the Swedish language and the Russian language. He was a member of the International Auxiliary Language Association.

He aimed to help youth and was very much interested in the subject of management. He was a member of the American Management Association and treasurer and director of the Seventh International Management Congress, Inc. His interest in the general social welfare was indicated by his membership in the Academy of Political Science, American Academy of Political and Social Sciences, American Society for Labor Legislation, American Statistical Association, City Club of New York and Civil Service Reform Association.

He played the harp and piano and also had taught these instruments. He took great delight in improvising music at the piano.

He believed in outdoor life and followed many athletic activities. He was a member of the New York Athletic Club. He also showed an interest in the playing of chess. He had the ability to play numerous opponents at one time and win the games.

His standards of life were high and honesty was an important trait of his character. He attempted to understand spiritual life and hoped to see a better mankind.

CASUALTY ACTUARIAL SOCIETY

November 17, 1938

THE COUNCIL

**Officers:*	Francis S. Perryman	*President*
	Harmon T. Barber	*Vice-President*
	William J. Constable	*Vice-President*
	Richard Fondiller	*Secretary-Treasurer*
	Clarence W. Hobbs	*Editor*
	Thomas O. Carlson	*Librarian*
†*Ex-Presidents:*	Winfield W. Greene	1940
	Leon S. Senior	1942
†*Ex-Vice-Presidents:*	Ralph H. Blanchard	1940
	Charles J. Haugh	1940
	Sydney D. Pinney	1942
†*Elected:*	Arnette R. Lawrence	1939
	Ralph M. Marshall	1939
	F. Stuart Brown	1939
	G. F. Michelbacher	1940
	Norton E. Masterson	1940
	Mark Kormes	1940
	James M. Cahill	1941
	Robert V. Sinnott	1941
	Emma C. Maycrink	1941

*Terms expire at the annual meeting in November, 1939.

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

COMMITTEES

Committee on Admissions

Thomas F. Tarbell (Chairman)
Gustav F. Michelbacher
William F. Roeber
William J. Constable
Hiram O. Van Tuyl

Auditing Committee

W. Phillips Comstock (Chairman)
Howard G. Crane
Lee J. Wolfe

Editorial Committee

Clarence W. Hobbs (Chairman)

Assistant Editors

Clarence A. Kulp
Jack J. Smick
Thomas O. Carlson

Educational Committee

Clarence A. Kulp (Chairman)
Emma C. Maycrink
Norton E. Masterson
William M. Corcoran
Lloyd A. H. Warren
William H. Burling
Albert Z. Skelding
Charles J. Haugh
Thomas O. Carlson *(ex-officio)*

Examination Committee

Nels M. Valerius (General Chairman

Fellowship

Mark Kormes (Chairman)
Russell P. Goddard
Robert V. Sinnott

Associateship

Harry V. Williams (Chairman)
Arthur E. Cleary
Matthew H. McConnell, Jr.

Committee on Papers

Sydney D. Pinney (Chairman)
Paul Dorweiler
Joseph Linder
Clarence W. Hobbs *(ex-officio)*

Committee on Program

Ralph H. Blanchard
William J. Constable
Winfield W. Greene
Clarence W. Hobbs
Gustav F. Michelbacher
Leon S. Senior
Harmon T. Barber
Richard Fondiller *(ex-officio)*
Francis S. Perryman (Chairman, *(ex-officio)*

SPECIAL COMMITTEES

Committee on Reserves for Fidelity and Surety Lines

Charles V. R. Marsh (Chairman)
Joseph J. Magrath
John A. Mills
John A. Barter
Arthur E. Thompson

Committee of Mortality for Disabled Lives

Paul Dorweiler (Chairman)
Ralph M. Marshall
Mark Kormes
Harmon T. Barber
S. Bruce Black
Charles M. Graham
Richard M. Pennock

Committee of Seven on Study of Automobile Insurance Costs

Ralph H. Blanchard (Chairman)
Francis S. Perryman
Thomas F. Tarbell
Paul Dorweiler
Harold J. Ginsburgh
Grady H. Hipp
William J. Constable

Committee on Advancement of Associates

F. Stuart Brown (Chairman)
Thomas O. Carlson
James M. Cahill

FELLOWS

John W. Ainley
Gilbert E. Ault
William B. Bailey
Harmon T. Barber
John L. Barter
Elgin R. Batho
Roland Benjamin
Ernest T. Berkeley
S. Bruce Black
Ralph H. Blanchard
Edward J. Bond, Jr.
Thomas Bradshaw
William Breiby
F. Stuart Brown
Herbert D. Brown
George B. Buck
Charles H. Burhans
William H. Burhop
William H. Burling
James M. Cahill
Freeland R. Cameron
Edmund E. Cammack
John W. Carleton
Thomas O. Carlson
Raymond V. Carpenter
Arthur E. Cleary
Barrett N. Coates
Clarence S. Coates
Edmund S. Cogswell
Henry Collins
W. Phillips Comstock
William J. Constable
Edwin A. Cook
John A. Copeland
William M. Corcoran
Walter G. Cowles
James D. Craig
Howard G. Crane
E. Alfred Davies
Evelyn M. Davis
Miles M. Dawson
Elmer H. Dearth
Eckford C. DeKay
Paul Dorweiler
Earl O. Dunlap
John Edwards
James S. Elston
Walter T. Eppink
Edward B. Fackler
Everett S. Fallow
Henry Farber
Gilbert W. Fitzhugh
James E. Flanigan
Benedict D. Flynn
Richard Fondiller
Charles S. Forbes
Gardner V. Fuller
Charles H. Franklin
Carl H. Frederickson
Joseph Froggatt
Harry Furze
Fred S. Garrison
Harold J. Ginsburgh
J. Bryan Glenn
James W. Glover
Russell P. Goddard
Edward S. Goodwin
Charles M. Graham
Thompson B. Graham
William J. Graham
William A. Granville
Winfield W. Greene
Robert C. L. Hamilton
H. Pierson Hammond
Edward R. Hardy
Leonard W. Hatch
Charles J. Haugh
Charles E. Heath
Robert Henderson
David Heron
Robert J. Hillas
Clarence W. Hobbs
Lemuel G. Hodgkins
Frederick L. Hoffman
Charles H. Holland
Russell O. Hooker
Solomon S. Huebner
Charles Hughes
Robert S. Hull
Burritt A. Hunt

FELLOWS—Continued

Arthur Hunter
William A. Hutcheson
Charles W. Jackson
Henry H. Jackson
William C. Johnson
F. Robertson Jones
Elsie Kardonsky
William H. Kelton
Walter I. King
A. Loomis Kirkpatrick
Mark Kormes
Clarence A. Kulp
John M. Laird
Stewart M. LaMont
John R. Lange
Arnette R. Lawrence
James R. Leal
William Leslie
Joseph Linder
Edward C. Lunt
Daniel J. Lyons
William N. Magoun
Ralph M. Marshall
Norton E. Masterson
Arthur N. Matthews
Emma C. Maycrink
D. Ralph McClurg
M. H. McConnell, Jr.
Alfred McDougald
Robert J. McManus
Gustav F. Michelbacher
John H. Miller
Samuel Milligan
John A. Mills
James F. Mitchell
Victor Montgomery
William L. Mooney
George D. Moore
Albert H. Mowbray
Louis H. Mueller
Frank R. Mullaney
Ray D. Murphy
Lewis A. Nicholas
Thomas M. Oberhaus
Edward Olifiers
Frank J. O'Neill
Robert K. Orr
Olive E. Outwater
Bertrand A. Page
Sanford B. Perkins
W. T. Perry
Francis S. Perryman
Jesse S. Phillips
Samuel C. Pickett
Sydney D. Pinney
Dudley M. Pruitt
A. Duncan Reid
Frederick Richardson
Otto C. Richter
Robert Riegel
William F. Roeber
Emil Scheitlin
Leon S. Senior
George L. Shapiro
David Silverman
Robert V. Sinnott
Albert Z. Skelding
Edward S. Skillings
Jack J. Smick
John B. St. John
Edward C. Stone
Wendell M. Strong
William Richard Strong
Thomas F. Tarbell
John S. Thompson
John L. Train
Antonio T. Traversi
Nels M. Valerius
Hiram O. Van Tuyl
Alan W. Waite
Harry V. Waite
Lloyd A. H. Warren
Albert W. Whitney
Harry V. Williams, Jr.
Herbert E. Wittick
Lee J. Wolfe
Arthur B. Wood
Charles N. Young

ASSOCIATES

Milton Acker
Saul B. Ackerman
Austin F. Allen
Robert E. Ankers
A. Edward Archibald
James C. Barron
Arthur E. Bateman
W. Harold Bittel
Nellas C. Black
Edward L. Bomse
Perry S. Bower
Cloudesley R. Brereton
Helmuth G. Brunnquell
Louis Buffler
James M. Bugbee
Margaret A. Burt
Leo D. Cavanaugh
S. T. Chen
Stuart F. Conrod
George A. Cowee
William H. Crawford
Joseph B. Crimmins
Malvin E. Davis
Reginald S. Davis
Harilaus E. Economidy
Frank A. Eger
George B. Elliot
Jarvis Farley
L. Leroy Fitz
Amos H. Fitzgerald
Frank A. Fleming
John Froberg
Fred J. Fruechtemeyer
Maurice L. Furnivall
Richard W. Gallon
John J. Gately
Richard A. Getman
Joseph P. Gibson, Jr.
James F. Gildea
Harold R. Gordon
Walter C. Green
A. N. Guertin
Robert E. Haggard
Hartwell L. Hall
William D. Hall
Hugh P. Ham

Scott Harris
Ward Van Buren Hart
George F. Haydon
Grady H. Hipp
Edward T. Jackson
Carl N. Jacobs
Edward S. Jensen
H. Lloyd Jones
Harold M. Jones
Loring D. Jones
Carl L. Kirk
E. W. Kitzrow
Morris Koloditzky
William Lassow
Howard A. Lewis
Julius Lieblein
Harold E. MacKeen
Joseph J. Magrath
Jacob Malmuth
Charles V. R. Marsh
William H. Mayer, Jr.
Rosswell A. McIver
Samuel M. Michener
Henry C. Miller
John L. Milne
Edward H. Minor
John C. Montgomery
Joseph P. Moore
Roland V. Mothersill
Robert J. Myers
Fritz Muller
S. Tyler Nelson
William Newell
Karl Newhall
Earl H. Nicholson
Walter E. Otto
Donald M. Overholser
Richard M. Pennock
John H. Phillips
Morris Pike
John W. Piper
Kenneth B. Piper
William A. Poissant
William F. Poorman
Sylvia Potofsky
John M. Powell

ASSOCIATES—Continued

Joseph Raywid
Harry F. Richardson
James A. Roberts
Rainard B. Robbins
Harry M. Sarason
Arthur Sawyer
Exequiel S. Sevilla
Norris E. Sheppard
John L. Sibley
Arthur G. Smith
William F. Somerville
Armand Sommer
Alexander A. Speers
Harold S. Spencer
Herbert P. Stellwagen
Kendrick Stoke
Walter F. Sullivan
Arthur E. Thompson
Frederick H. Trench
M. Elizabeth Uhl
Charles S. Warren
James H. Washburn
Leland L. Waters
Max S. Weinstein
Eugene R. Welch
Alexander C. Wellman
Walter I. Wells
Charles A. Wheeler
Frank G. Whitbread
William R. Williamson
Donald M. Wood
Donald M. Wood, Jr.
Milton J. Wood
Charles E. Woodman
Barbara H. Woodward
James M. Woolery
Floyd E. Young

ABSTRACT FROM THE MINUTES OF THE MEETING

November 17 and 18, 1938

The twenty-fifth annual (fifty-first regular) meeting of the Casualty Actuarial Society was held at the Hotel Biltmore, New York, on Thursday and Friday, November 17 and 18, 1938.

President Senior called the meeting to order at 10:15 A. M. The roll was called, showing the following forty-seven Fellows and twenty-five Associates present:

FELLOWS

Ainley
Ault
Barber
Barter
Berkeley
Blanchard
Brown, F. S.
Cahill
Cameron
Carlson
Cleary
Comstock
Constable
Crane
Davis, E. M.
Dorweiler
Dunlap
Fondiller
Ginsburgh
Graham, T. B.
Haugh
Hobbs
Hull
Kardonsky
Kelly
Kormes
Lawrence
Lunt
Magoun
Marshall
Masterson
Matthews
Maycrink
Michelbacher
Mills
Perkins
Perryman
Pinney
Pruitt
Senior
Shapiro
Sinnott
Smick
Tarbell
Valerius
Van Tuyl
Williams

ASSOCIATES

Barron
Black
Buffler
Elliott
Farley
Fitz
Fitzgerald
Fruechtmeyer
Furnivall
Gildea
Hipp
Jones, H. L.
Jones, H. M.
Koloditzky
Lassow
Lieblein
Minor
Marsh
Mayer
Potofsky
Smith
Stoke
Uhl
Warren
Woodward

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

Mr. Senior read his presidential address.

The minutes of the meeting held May 20, 1938 were approved as printed in the *Proceedings*.

The Secretary-Treasurer (Richard Fondiller) read the report of the Council and upon motion it was adopted by the Society.

Mr. Senior directed attention to the fact that Mr. Richard Fondiller had served the Society as Secretary-Treasurer for a period of twenty years with great ability, integrity and unexampled industry. It was moved and duly seconded that the Society extend its thanks and appreciation to Mr. Fondiller for the fidelity with which he had performed the duties of his office. The resolution was unanimously adopted.

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

John W. Carleton
Elsie Kardonsky
John H. Miller

The following candidates had passed the necessary examinations, had met the experience requirements, and had been enrolled as Associates:

George B. Elliott
Julius Lieblein

The following candidates have been successful in completing the examinations for Associate, but have not yet been enrolled by reason of the terms of Examination Rule 4:

Paul Civin
Maurice F. Feay
Samuel Joffe
Thomas H. Kirkpatrick
Arthur F. Parry
Norman Siegeltuch
Robert J. Towne

Diplomas were then presented by the President to John W. Carleton, Elsie Kardonsky and John H. Miller, who had been admitted as Fellows under the 1938 examinations.

The President announced the deaths, since the last meeting of the Society, of three Fellows, Claude W. Fellows, James F. Little, and Charles G. Smith, and the memorial notices appearing in this Number were thereupon read.

By ballot of the Society, Gregory C. Kelly was reinstated as a Fellow.

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

CASUALTY ACTUARIAL SOCIETY

Annual Report of Finances

Cash Receipts and Disbursements from October 1, 1937
to September 30, 1938

Income

On deposit on October 1, 1937 in Marine Midland Trust Company		$3,260.19
Members' Dues	$2,795.00	
Sale of *Proceedings*	1,375.97	
Examination Fees	798.00	
Luncheons	628.00	
Interest and Miscellaneous	40.55	
Michelbacher Fund	244.50	5,882.02
Total		$9,142.21

Disbursements

Printing and Stationery		$3,234.40
Postage, Express, etc.		185.10
Stenographic Services		420.00
Library Fund		6.48
Luncheons		693.42
Examination Expense		34.53
Insurance		37.04
Miscellaneous		142.77
Total		$4,753.74
On deposit on September 30, 1938 in Marine Midland Trust Company		4,388.47
Total		$9,142.21
Income	$5,882.02	
Disbursements	4,753.74	
Excess of Income over Disbursements	$1,128.28	
1937 Bank Balance	3,260.19	
1938 Bank Balance	$4,388.47	

Assets

Cash in Bank:		
Michelbacher Fund	$ 977.34	
Other Funds	3,411.13	
Total Cash in Bank		$4,388.47
Bonds		1,000.00
Total		$5,388.47

The Auditing Committee (W. P. Comstock, Chairman), reported that the books of the Secretary-Treasurer had been audited and his accounts verified.

The Examination Committee (James M. Cahill, Chairman), submitted a report of which the following is a summary:

1938 EXAMINATIONS — SUCCESSFUL CANDIDATES

The following is a list of those who passed the examinations held by the Society on May 18 and 19, 1938:

ASSOCIATESHIP EXAMINATIONS

PART I:
Philip D. Anderson
Lyle H. Barnhart
Fletcher S. Boig
Paul Civin
Maurice F. Feay
Gerald D. Groden
Olaf Hagen
Thomas H. Kirkpatrick
Julius Lieblein
Robert H. Little
Robert W. Lufkin
William S. Morris
George C. Munterich
Arthur F. Parry
Walter F. Penney
S. M. Ross
Max J. Schwartz
Norman Siegeltuch
John P. Tillinghast
Robert J. Towne
Ira N. Tuck
D. R. Uhthoff

PART II:
Edward S. Allen
Lyle H. Barnhart
Fletcher S. Boig
Paul Civin
Wagner d'Alessio
Maurice F. Feay
Malcolm H. Henry
Thomas H. Kirkpatrick
Julius Lieblein
Charles G. Lincoln
Robert W. Lufkin
Maxwell Marks
Thomas K. Mitchell
George C. Munterich
Arthur F. Parry
Norman Siegeltuch
Harold J. Silver
Robert J. Towne
Eleanor Tracy
Ira N. Tuck
Ben Wartell
Charles B. Wason

PART III:
Philip D. Anderson
Paul Civin
George B. Elliott
Maurice F. Feay
Samuel Joffe
Thomas H. Kirkpatrick
Julius Lieblein
Robert H. Little
Francis F. Middleswart
Wilbur R. Nordos
Arthur F. Parry
Norman Siegeltuch
John P. Tillinghast
Robert J. Towne

PART IV: Philip D. Anderson
Paul Civin
Maurice F. Feay
Olaf Hagen
Roger A. Johnson, Jr.
Thomas H. Kirkpatrick
Julius Lieblein
Robert H. Little
William S. Morris
Arthur F. Parry
Walter F. Penney
Norman Siegeltuch
Harold J. Silver
Seymour E. Smith
John P. Tillinghast
Robert J. Towne

FELLOWSHIP EXAMINATIONS

PART I: Jarvis Farley
Morris Koloditzky
Sylvia Potofsky (Miss)
Hugh P. Ham

PART II: Hugh P. Ham

PART III: John W. Carleton
John H. Miller

PART IV: John W. Carleton
Elsie Kardonsky (Miss)
John H. Miller

The Council's election of Clarence W. Hobbs as Editor and of Thomas O. Carlson as Librarian, was announced.

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

President	Francis S. Perryman
Vice President	Harmon T. Barber
Vice President	William J. Constable
Secretary-Treasurer	Richard Fondiller
Editor	Clarence W. Hobbs
Librarian	Thomas O. Carlson

Members of Council (terms expire in 1941):

James M. Cahill
Robert V. Sinnott
Emma C. Maycrink

Member of Council (term expires in 1940):

Mark Kormes

The papers read at the last meeting of the Society were discussed.

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

The new papers printed in this Number were read.

The meeting adjourned at 5 P. M.

An informal dinner was held in the evening at the Hotel. The addresses made by the various speakers are included in this Number.

On November 18 the meeting was called to order at 10:15 A. M. by the President.

Informal discussion was participated in by a number of members and representatives of insurance organizations upon the following topic:

> "Surety Rate-Making"—
>
> Methods adopted by Surety Experts compared with principles followed by Casualty Actuaries.

Upon motion, the meeting adjourned at 1:00 P. M.

Representatives of Casualty Companies and Organizations Present

R. H. Caplan, Jr., Chief Accountant, Fireman's Fund Indemnity Company, New York.

R. W. Carlson, Statistician, New England Department, Lumbermen's Mutual Casualty Company, Boston, Mass.

G. W. Crist, Jr., Manager, Fidelity & Deposit Company, New York.

H. E. Curry, Actuary, Farm Bureau Grcup, Columbus, Ohio.

George A. Dierauf, Secretary-Treasurer, Compensation Insurance Rating Board, New York.

Elizabeth V. Doogan, Attorney (Arbitration), Compensation Insurance Rating Board, New York.

William F. Dowling, Assistant Manager, Lumber Mutual Casualty Insurance Company, New York.

Ernest A. Erickson, Statistician, Utilities Mutual Insurance Company, New York.

Daton Gilbert, Resident Investigator, Life Insurance Sales Research Bureau, Hartford, Conn.

chusetts, Boston, Mass.

Charles F. J. Harrington, Insurance Commissioner of Massa-

Martha A. Henderson, Compensation Insurance Rating Board, New York.

RALPH L. INGLIS, Resident Vice President, Associated Indemnity Corporation, New York.

ROGER A. JOHNSON, JR., Compensation Insurance Rating Board, New York.

MYRTLE S. KELLY, Statistician, Pennsylvania Compensation Rating & Inspection Bureau, Philadelphia, Pa.

FREDERICK C. KESSLER, Secretary-Treasurer, Consolidated Taxpayers Mutual Insurance Company, Brooklyn, N. Y.

JOHN H. LEWIS, Statistician, Lumber Mutual Casualty Insurance Company, New York.

W. E. LISTER, Secretary, The Home Indemnity Company, New York.

HENRY D. LOCKE, Liberty Mutual Insurance Company, Boston, Mass.

PAUL MOLNAR, Examiner, New York State Insurance Department, New York.

MIRIAM PEARL, Librarian, Compensation Insurance Rating Board, New York.

ARTHUR H. REEDE, Research Assistant, Harvard University, Boston, Mass.

F. B. SCHROETER, Zurich General Accident & Liability Insurance Company, New York.

VAL WHITE, Manager, Bonding Department, American Mutual Liability Insurance Company, Boston, Mass.

B. H. ZIMELS, Vice President, Consolidated Taxpayers Mutual Insurance Company, Brooklyn, N. Y.

VOL. XXV, PART II NO. 52

PROCEEDINGS

MAY 19, 1939

THE CASUALTY ACTUARY

PRESIDENTIAL ADDRESS BY FRANCIS S. PERRYMAN

Last November the Casualty Actuarial Society did me the great honor of electing me its President. I want to take this, my first, opportunity of expressing to the Society my appreciation of the high honor and of stating that the responsibilities of the office, of which I am fully conscious, I shall do my best to undertake and that the interests of the Society will always be looked after by me to the fullest extent of my powers—and I trust that my efforts will be a worthy continuation of the high standards set by my predecessors.

When I came to prepare this address, the first question that raised itself was "What is the object of the President's address?" Is it to fill up part of each session or is it merely to continue a tradition that got started? The answer to each of these suggestions is obviously "no," for if the President's address has no value in itself then something more valuable should be found to fill up the sessions and the tradition is not worthy of being continued. Neither does it seem that the reason for such an address should be to make some valuable contribution to actuarial science, for first of all it is impossible to expect that the President for the time being shall be able to make such a contribution twice a year and secondly if he has such a contribution to make he can always present a paper containing it. Upon reflection, I think it will be plain that the object of the address is rather to review the status of the profession either as a whole or from some particular angle, or else to point out some outstanding or new aspect of our science to which the attention of the profession should be drawn, for it is the privilege and duty of the President, when necessary, to urge some new point of view on the profession or to indicate some new direction in which actuarial activity should be extended.

The President's address could even, and perhaps should from time to time, be the occasion of the taking of stock of the Society and if the President finds that certain things that are not being done should be done, or that are being done should not be done, he should call on the Society to consider these things. With these ideas in mind, I took the occasion to reread a good many of the former addresses of your Presidents and found, as you will find if you also reread those addresses (and incidentally I believe it would be a good idea for you to do so from time to time) that all the aspects that I have just mentioned of a review or a commentary have been adopted in some form or other by my predecessors in the presidential office. Incidentally, I might say I have been considerably concerned at the task of maintaining the high standard of previous presidential addresses.

In accordance with the foregoing, which leaves a wide latitude to your President, I have not found it hard to think of a great deal to talk about as regards various aspects of the profession. Therefore, in this address I am not going to present any valuable contribution to our science but I am going to touch on various general aspects of the profession and my remarks will be quite general and will, I hope, perhaps furnish the occasion for the members of this Society to think a little more deeply than we usually have time to do about the fundamentals of our professional activities which should always be in our thoughts at least subconsciously if not consciously.

To start such a general review I should, I suppose, talk briefly about what constitutes an actuary, and particularly a casualty actuary, and discuss his evolution. However, into the early history of actuarial science and of the growth of the body of men with specialized knowledge and training (now known as actuaries) I will not go at length. In many of the presidential addresses of Actuarial Societies, both life and casualty, you will find traced the derivation of the name actuary, and an account of the development of the modern actuary. I was recently reading the address to the Institute of Actuaries in England of its new President, Colonel Oakley. In this he aptly characterizes actuaries as "dealers in futures." He pointed out that actuaries are concerned with future mortality, future rates of interest, future expenses, future margins. He was thinking, of course, principally of actuaries dealing with life insurance but, nevertheless, his criterion of an actuary is a true one for all actuaries, including actuaries in the casualty business, actuaries dealing with social insurance and actuaries dealing with any other branch of human endeavor, as well as life insurance actuaries. It was because of this essential concern of actuaries with the future that when the casualty business started on its meteoric career in the second decade of this century, it was recognized that actuarial training would be helpful if not requisite to deal with the problems that were cropping up in every direction. There was at that time available very little actual experience and what there was seemed ill adapted to elucidate the future that was looming ahead. What were the correct answers to the questions on rates, reserves, etc.? What in other words was to be done as regards the future? Here was a situation that obviously called for actuaries and hence was born the Casualty Actuarial Society. It happens that in this country those actuaries who were called on to deal with these new and growing problems decided that their interests and those of the business would best be served by a separate forum where they could exchange views and help one another and so this separate forum was set up in the shape of the Casualty Actuarial Society. In most other countries, such a separation was not effected, perhaps because of different local conditions, perhaps because elsewhere the problems did not arise so fast and the existing Actuarial Societies could find time to give them adequate attention; nevertheless, the fact remains that in this country a separate society was set up and this has without doubt been of considerable aid to the actuaries, called on to deal with casualty problems, as well as to the casualty business as a whole. Those of us who are acquainted with the casualty business in parts of the world other than the North American continent realize that the technical handling of casualty business is far more advanced here than elsewhere and often think that elsewhere more progress would have been made if separate societies had been established to foster the purely casualty end of actuarial science.

In the early days of our Society, compensation insurance presented the greatest number of new and pressing problems. There were lots of them. It is difficult for us now-a-days to realize just what it must have been like for the actuaries who had to deal with these new questions. The actuaries of those days had no precedents to go by, no established methods, no statistical information—in fact, they had practically nothing to go by except their wits and training; so they energetically set to work to find solutions to their problems. The younger members of the Society may realize to some degree what these pioneers were up against if they reread some of the earlier numbers of the *Proceedings,* bearing in mind that what is in the *Proceedings* is the finished product (if I may so term it), and that there does not appear in the *Proceedings* any record of the hours of thought and toil that the pioneer actuary went through before he was able to arrive at what eventually appeared in the *Proceedings.* It may seem to the younger actuary, rereading the earlier numbers, that the pioneers were rather perverse at times, paying a lot of attention to what we now know are, or at any rate regard as, trivial points, while on the other hand the pioneer skipped lightly over what we now believe are the essentials of the questions. However, this is always the way with pioneering. A high-school student now-a-days does mathematics, which would have baffled a first-class mathematician of a few centuries ago; and college students take in their stride whole fields of thought unknown to leading thinkers of a generation or so ago.

How did these pioneer casualty actuaries and their successors make out? On the whole they did quite well—the casualty business has been growing rapidly and very complexly, and but for the work of its actuaries, even its present state (however far from perfect it may be) would not have been attained. This brings me to another observation. When evaluating the degree of success of actuaries in the casualty field we must recognize the quite considerable differences between actuarial problems in the casualty business and in the original field of actuarial effort, namely life insurance. In essence, life business involves much more technical work, that is to say more purely actuarial work. The deals in futures, that I referred to above, are spread over a long period of time and it has been possible and desirable for the life actuary to use more margins in his calculations. Casualty business involves less technical or mathematical work and essentially deals more with what I may term "humanities" and quicker results are looked for—particularly as the economic and social factors that casualty business deals with change quite rapidly and have particularly done so during the last twenty-five years. Perhaps under different conditions, for instance a more stable world, or had the temperament of the inhabitants of this continent been less energetic, results similar to those attained in casualty insurance could have been reached by slower and longer range methods. Something of this sort has been experienced in other parts of the world, for instance in England, where while the growth of casualty business has been almost as rapid as here, it has so far been along more conservative lines; coverages and rates and conditions generally have not changed as rapidly as in this country. Actuaries here might have preferred some such more steady development but they were not the choosers. They have had to grapple with the problems as they arose; they have had to endeavor to make rates or reserves or what else to fit the present or the near future in times of great flux. They have, of course, tried to influence insurance opinions to take the more reasonable road, and not without success. The really technical aspects of Casualty Actuarial work have been naturally dealt with more successfully than have the social problems to which the business has given rise, but that, of course, is true of other actuarial fields and indeed of all modern life. Man has achieved great technical accomplishments; he can build bridges, battleships, airplanes, successfully, but he has not displayed the same ability in managing himself, as is evidenced by the present state of the world. To come nearer home, we find in life insurance that actuaries have had least success when they have had to deal with the aforesaid "humanities"—for instance, look at disability coverage, which has been wrecked by its impact with factors not at all unfamiliar to casualty actuaries (I hope our friends—the life actuaries—will not resent this reference. Some of casualty's ventures into similar fields—e.g. non-cancellable accident and health business—have had similar unfortunate results). So the casualty actuary should not be too discouraged at what he may consider his apparent lack of success in dealing with the social and economic aspects of his work. As a matter of fact, the casualty actuary's training in dealing with such problems is precisely what is needed in the modern world. I think that serious thinkers will agree that ultimately the complex problems of social and government planning, that is politics in its true sense, will have to be handled on more scientific lines. Proper plans will have to be made to deal with the intricacies of our civilized life. These plans will take the place of the existing lack of method consisting too often of day-to-day expedients foisted on a restive population by so-called politicians with none of the required technical training and ability. And who is there more fitted than the actuary to make such proper plans? His will be the privilege of using his knowledge and experience, his actuarial tools and methods, so as to solve our modern social problems, our problems of living together in harmony and cooperativeness; for this is sure, that such problems will be solved and they can be dealt with only by scientific methods that are in essence those we use and know as our actuarial ones; and if actuaries do not make it their business to take a fuller part in the life of the country along the lines of true scientific planning, some other body of men will and they will attain success only by the use of actuarial methods; in other words, only by becoming actuaries.

However, this is perhaps going rather too far into the future. What is the more immediate prospect? Up to now, despite the efforts of some of us to diversify our proceedings, Workmen's Compensation problems have occupied a large proportion of our time—that is of the Society's time. I think that other kinds of insurance will and should claim an increasing share of our attention. Recent developments in lines like Automobile insurance indicate the need of actuarial methods there and perhaps reflect our lack of attention to this field. Most of the other casualty lines—Miscellaneous Liability and Property Damage, Burglary, Bonding, Boiler and Machinery, will and should receive an evergrowing amount of actuarial assistance. All of which must result in continual improvement in the status of the actuary in casualty business. And as to that, here again let me say—don't let us be discouraged about that status. The standing of actuaries in this country is progressively getting better. In life insurance, while actuaries have not perhaps yet attained the preeminent position they occupy in some other countries, they are getting there. Casualty actuaries have been engaged in their particular branch of the profession for a comparatively short period of years during which the size of the business has expanded enormously and where a lot of emphasis, perhaps too much emphasis, has been placed on other aspects such as the "selling end." During this period, as I have mentioned above, many things have been done that perhaps the actuaries would have preferred should not have been done—at any rate, the business finds itself with still a large number of problems on its hands, many of which we know the actuary will eventually have to solve. Let him, therefore—this casualty actuary about whom I have been talking—continue to grapple with these problems, knowing full well that he has an enormous advantage in the possession of a scientific mind and of scientific methods; with these he will, on his merits, be called on to play a larger and most responsible part in the business of casualty insurance.

ADDITIONAL INDEX NUMBERS OF COMPENSATION INSURANCE RATE LEVELS

BY

NELS M. VALERIUS

Five years ago Mr. Paul Dorweiler and the writer presented tables of Workmen's Compensation insurance rate level indexes in a paper before the Society.* Those tables covered the period from the beginning of relative standardization of rate-making in the earlier Workmen's Compensation states and from the first enactment of Workmen's Compensation laws in many other jurisdictions to January 1, 1934. They gave not only index numbers for each separate state or jurisdiction but also showed the general or average indexes for all jurisdictions. The present addition extends the tables to the date January 1, 1939.

Besides the basic data in Table I, three series of indexes are presented, as previously, of: the actual rate levels in effect on July 1st of each year, Table II; the calendar year average rate levels, Table III; and the policy year average rate levels, Table IV. The calendar year indexes should be of most general interest and are considered to be the principal exhibit. The policy year figures are presented with the thought that they may be of use in the interpretation or adjustment of policy year data, which occupy so important a place in casualty insurance statistics. Both the calendar year and policy year indexes are calculated on the assumption that the exposure is uniformly distributed within each calendar or policy year, as the case may be; that is, each index in each state or jurisdiction in these two Tables, III and IV, represents usually the composite of two or more rate levels weighted together on this assumption.† The indexes of Table II, of the

* P.C.A.S. XX, pp. 302-338.

† The calculation of policy year and calendar year indexes from the basic material of Table I is explained in detail in P.C.A.S. XX, pp. 308-309 and illustrated on page 315.

actual rate levels in effect on July 1st, each year, do not involve this assumption and composition and are thus at once more accurate and much simpler. They serve as a check on Tables III and IV and may themselves be very readily checked with the basic data in Table I. The full fluctuations of the actual rate levels should be represented in the simple indexes of Table II, whereas they may be levelled off a bit in the calendar and policy year figures of Tables III and IV by the effect of adjoining levels.

In every table there are two sets of indexes as before. Those set in roman type and called "Manual Level Indexes" represent the varying realizable premiums for a constant exposure through the years as determined by the changing levels of rates and certain other related items, namely the expense and loss constants and the "off-balance" loadings in rates to true up the variations from manual rate premiums caused by experience rating plans.

In addition to the primary relative numbers of Workmen's Compensation insurance cost per unit of payroll exposure described above, other derived series, termed "Modified Level Indexes," are shown, set in italic type. In the "Modified Level Indexes" the increased (or decreased) cost caused by increases (or decreases) from time to time in the benefits granted by the compensation laws has been thrown off so that the trends and fluctuations caused by industrial conditions and the business cycle may appear more clearly. In the paper to which this is a supplement the term "Effective Level Indexes" was used for these numbers but this term has been thought somewhat confusing.

A great deal of attention has been given by the rating organizations to the emergence of occupational disease as an important element in Workmen's Compensation coverage in the five years from 1934. The specific and general loadings for occupational disease which have been adopted in the period are not reflected in the basic material of this paper and hence not in the indexes given, except for two states. In these states—New York and Delaware—the general loadings are reflected, but in no state is the effect of the specific loadings on certain hazardous classifications reflected. Actually, such loadings, while extremely important in some classifications, have not had a major effect on the rate levels of the states as wholes, it is believed.

It may be noted also that from 1934 a new element was added in the rate level determination in most states, the contingency factor based on "account current" accruals of calendar year experience. This changed the simple relation of lag between loss trends and rate trends.

In setting down the underlying data in the extension of Table I herewith, the first item of the previous Table I for each jurisdiction has been reprinted from the paper cited, at the top in each case so that the base to which the figures in columns (4) and (6) are referred may be readily had in mind. This base in Table I, it may be well to repeat, is, in each jurisdiction, the first set of rates under relative standardization of rate-making. In many cases it is also the first set of rates under the Workmen's Compensation law, including two states which did not make their appearance in the previous Table I.

The index numbers in Tables II, III and IV have been calculated as before with the rate levels in effect on January 1, 1934 taken as 100. This base date may have no particular merit now, having been selected as a convenient and recent date at the time of the paper. To accomplish the addition of the new states, Florida and South Carolina, on this basis, that is January 1, 1934 levels, a hypothetical January 1, 1934 level might be worked out from the average trend of all states; however, they were based on their original 1935 levels. In the calculation of indexes of all states combined in Tables II, III and IV, that is the last two rows of each table, the previous weights (page 316, P.C.A.S. XX) were used with the addition of $5,000,000 for Florida and $2,500,000 for South Carolina as estimated premium for two years. A better system of weighting the states together could be readily devised, say taking into consideration the varying premiums in the individual years but it is doubtful if the refinement would affect the results appreciably as we deal with relatively homogeneous items when we are averaging rate trends in the states, and this fact minimizes the importance of weights.

TABLE I

Compensation Rate Levels by States From January 2, 1934 to January 1, 1939

Column (2)

A—Revision applied to All policies. Other changes apply to New and Renewal policies only. Where two changes appear at same date, the increase in ( ) applies to outstanding policies to adjust for law, the other represents a general revision for new and renewal policies, including amendment.

Column (3) Adjustment Factors

E—Expense Constant Offset Factor.

L—Loss Constant Offset Factor.

B—Factor for unrealized portion of Balance Factor for Experience Rating Off-Balance.

STATE Effective Date (1)	Manual Rates Ratio (2)	Adjustment Factors (3)	Manual Level Index (4)	Law Amendment Factor (5)	Modified Level Index (6)
Alabama					
*1- 1-20	....	.994 B	1.000		1.000
12-31-34	1.061	.968 L	1.248		1.248
1- 1-36	(1.150)	1.006 B	(1.435)	1.150	(1.248)
	1.067		1.323		1.151
5- 1-36	1.000		1.323	a	1.151
1- 1-37	.808		1.069		.930
1- 1-38	.977	1.018 B	1.026		.892
Alaska					
8- 4-23	....		1.000		1.000
6-12-35	1.350 A		1.702	1.100	1.278
6-10-37	1.000		1.702	1.104 b	1.158
Arizona					
**11- 3-25	....		1.000		1.000
		No revisions	1934-1938		
California					
11-12-17	....		1.000		1.000
9-14-35	1.000		1.274	1.000 b	1.158
4-1-37	.983	.995 B	1.259		1.144
8-27-37	1.000		1.259	1.000 b	1.144
4- 1-38	.888	.999 B	1.119		1.017
Colorado					
6- 1-17	....		1.000		
3- 1-35	1.068	1.011 B	1.485		.932
7- 5-35	1.000		1.485	a b	.932
3- 1-36	1.091	.994 B	1.630		1.023
12-10-36	1.000		1.630	1.050 b	.974
3- 1-37	.905	.990 B	1.490		.891
5-29-37	1.000		1.490	1.000 b	.891
8-13-37	1.000		1.490	1.000 b	.891
5- 1-38	1.038	1.004 B	1.541		.921

TABLE I (*Continued*)

Compensation Rate Levels by States From January 2, 1934 to January 1, 1939

STATE Effective Date (1)	Manual Rates Ratio (2)	Adjustment Factors (3)	Manual Level Index (4)	Law Amendment Factor (5)	Modified Level Index (6)
Connecticut					
5- 1-17	....		1.000		1.000
1-31-34	1.000		1.319		.998
2-28-35	.972		1.282		.970
7- 1-35	1.000		1.282	1.009	.961
3-31-36	.990		1.270		.952
3-31-37	1.005		1.276		.957
7- 1-37	1.000		1.276	1.004 b	.953
3-31-38	.943		1.203		.898
Delaware					
*1- 1-18	....		1.000		1.000
12-31-35	.970 A	.960 E	1.212		.840
12-31-36	.955 A	.977 E	1.184		.821
5-19-37	1.000		1.184	h	.821
12-31-38	.992	1.010 B E	1.163		.806
District of Columbia					
*7- 1-28	....	.960 E	1.000		1.000
5-26-34	1.000		1.333	a	1.333
7- 1-35	1.079	1.005 B	1.431		1.431
7- 1-36	1.044	.997 B	1.499		1.499
7- 1-37	.956	1.002 B	1.430		1.430
6-15-38	1.000		1.430	1.000	1.430
6-25-38	1.000		1.430	1.000 b	1.430
7- 1-38	.880	1.002 B	1.256		1.256
Florida					
*7- 1-35	....		1.000		1.000
1- 1-37	1.000	.964 L	1.037		1.037
7- 1-37	1.000		1.037	1.141 b	.909
5- 1-38	.825 A	1.012 B	.846		.741
Georgia					
*3- 1-21	....		1.000		1.000
4- 1-34	1.043	.976	1.678		1.686
4-10-35	1.000		1.678	1.000 b	1.686
4-30-35	1.007	.955 L	1.769		1.777
3- 1-36	.878	1.002 B	1.550		1.557
12-31-36	.898	1.009 B	1.379		1.386
3-30-37	1.029		1.419	1.029 b	1.386
3-31-38	1.125	1.011 B	1.580		1.542
Hawaii					
9- 1-23	....		1.000		1.000
4-23-35	1.000		1.515	1.000 b	1.515
3- 1-36	1.082		1.639		1.639
4-23-37	1.000		1.639	1.008	1.626
5- 3-37	1.000		1.639	1.000 b	1.626

TABLE I (*Continued*)

COMPENSATION RATE LEVELS BY STATES
FROM JANUARY 2, 1934 TO JANUARY 1, 1939

STATE Effective Date (1)	Manual Rates Ratio (2)	Adjustment Factors (3)	Manual Level Index (4)	Law Amendment Factor (5)	Modified Level Index (6)
Idaho					
*1- 1-18	....		1.000		1.000
1-31-34	1.016		2.058		1.623
5- 6-35	1.000		2.058	1.000 b	1.623
3-31-36	.808		1.663		1.312
3-31-37	.831		1.382		1.090
5- 6-37	1.000		1.382	1.005 b	1.084
3-31-38	1.086		1.500		1.178
Illinois					
5- 1-17	....		1.000		1.000
7-10-35	1.000		1.076	a	.836
7- 1-36	1.000		1.076	1.001	.835
10- 1-36	.986		1.061	1.000 h	.823
7- 1-37	1.000		1.061	1.000 b h	.823
7- 2-37	1.000		1.061	1.003	.821
10- 1-37	.902		.957		.740
10-31-38	.885		.847		.655
Indiana					
5- 1-17	....		1.000		1.000
7- 1-35	.993	.980 B	1.045	1.000 b	.884
7- 1-36	.926	1.012 B	.956		.809
6- 7-37	1.000		.956	1.012 b h	.800
7- 1-37	.851		.814		.681
7- 1-38	.928		.755		.632
Iowa					
5- 1-17	....		1.000		1.000
1-31-34	1.000		1.336		.940
2-28-35	.967		1.292		.909
7- 4-35	1.000		1.292	1.000 b	.909
4-30-36	.988		1.276		.898
7- 4-37	(1.036) 1.012		(1.322) 1.292	1.036	(.898) .877
6-30-38	.839		1.084		.736
Kansas					
6- 1-17	....		1.000		1.000
4- 1-34	1.074		.964		.777
4- 1-35	.994	.977 L	.981		.791
5-15-35	1.000		.981	1.000 b	.791
4-30-36	1.023		1.003		.809
5-31-37	.938	1.002 B	.939		.757
6-30-37	1.000		.939	1.000 b	.757
4-30-38	1.000		.939	1.000 b	.757
5-31-38	.913	.999 B 1.011 L	.849		.684

TABLE I (*Continued*)

Compensation Rate Levels by States From January 2, 1934 to January 1, 1939

STATE Effective Date (1)	Manual Rates Ratio (2)	Adjustment Factors (3)	Manual Level Index (4)	Law Amendment Factor (5)	Modified Level Index (6)
Kentucky					
5- 1-17	....		1.000		1.000
6-14-34	1.000		1.176	a	1.052
3-31-35	1.069	.994 B .966 L	1.309		1.172
3- 7-36	1.000		1.309	1.000 b	1.172
6-30-36	.954	.997 B	1.253		1.121
4-16-37	1.044 A		1.308	1.044 b	1.121
6-30-37	.783	.993 B	1.031		.884
4-20-38	1.000		1.031	1.000	.884
6-30-38	1.042	1.007 B 1.008 L	1.058		.907
Louisiana					
5- 1-17	....		1.000		1.000
8- 1-34	1.000		1.834	1.000 b	1.296
1-31-35	.907	.986 B .970 L	1.739		1.228
3-31-36	.859	1.023 B	1.460		1.032
7-28-36	1.000		1.460	1.000 b	1.032
3-31-37	.935	1.008 B	1.354		.957
3-31-38	1.014	.997 B 1.020 L	1.350		.954
7-27-38	1.000		1.350	1.000 b	.954
Maine					
5- 1-17	....		1.000		1.000
3- 1-36	1.039	1.013 B	1.655		1.052
10-31-37	.961	.996 B	1.597		1.015
10-31-38	.938		1.498		.952
Maryland					
6- 1-17	....		1.000		1.000
2-28-35	.883	.979 L	1.252		.818
6- 1-35	1.000		1.252	a	.818
4-30-36	.939		1.175		.768
5-31-37	.941	.991 B	1.116		.729
6- 1-37	1.000		1.116	1.005 b	.726
5-31-38	.965	.996 B 1.008 L	1.072		.697

TABLE I (*Continued*)

COMPENSATION RATE LEVELS BY STATES
FROM JANUARY 2, 1934 TO JANUARY 1, 1939

STATE Effective Date (1)	Manual Rates Ratio (2)	Adjustment Factors (3)	Manual Level Index (4)	Law Amendment Factor (5)	Modified Level Index (6)
Massachusetts					
7- 1-17	....		1.000		1.000
8-30-34	1.000		1.395	1.001	1.120
9-24-34	1.000		1.395	1.000 b	1.120
9- 3-35	1.000		1.395	1.025 b	1.093
5- 1-36	.960	1.001 B 1.021 L	1.309		1.027
6-22-36	1.000		1.309	1.002	1.024
9-24-36	1.000		1.309	1.000 b	1.024
5-28-37	1.000		1.309	1.000 b	1.024
8-27-37	1.000		1.309	1.037 b	.988
12-31-37	.917		1.201		.906
6-28-38	1.000		1.201	1.000 h	.906
8-31-38	1.000		1.201	1.000 b	.906
12-31-38	.935		1.123		.847
Michigan					
5- 1-17	....		1.000		1.000
3-28-34	1.000		1.222	1.000 b	.676
9-21-35	1.000		1.222	a	.676
12-31-36	.972	.993 B	1.196		.661
10-29-37	1.000		1.196	1.000 b h	.661
12-31-37	.957	1.018 B	1.124		.622
12-31-38	.926	.994 B	1.047		.579
Minnesota					
6- 1-17	....		1.000		1.000
12-27-33	1.000		1.475	1.002	.958
12- 1-34	1.095	1.002 B	1.612		1.047
7- 1-35	1.000		1.612	a b	1.047
12- 1-35	.989	1.004 B	1.588		1.031
1-18-36	1.000		1.588	1.002	1.029
1- 1-37	.917		1.456		.944
7- 1-37	1.000		1.456	1.000 b	.944
1- 1-38	.846		1.232		.798
1- 1-39	.936	1.001 B	1.152		.747
Missouri					
*1- 9-27	....		1.000		1.000
12-31-34	.989	{.994 B {.972 L	1.328		1.315
12-31-35	.987		1.311		1.298
12-31-36	.991	1.007 B	1.290		1.277
12-31-37	1.004		1.295		1.282
12-31-38	.972	.999 B	1.260		1.248

TABLE I (*Continued*)

COMPENSATION RATE LEVELS BY STATES
FROM JANUARY 2, 1934 TO JANUARY 1, 1939

STATE Effective Date (1)	Manual Rates Ratio (2)	Adjustment Factors (3)	Manual Level Index (4)	Law Amendment Factor (5)	Modified Level Index (6)
Montana					
5- 1-17	....		1.000		1.000
1-31-34	1.078	1.001 B	2.305		1.402
2-28-35	1.043	1.001 B .964 L	2.492		1.515
3-22-35	1.000		2.492	1.000 b	1.515
3-31-36	1.067	.999 B	2.661		1.618
2-23-37	1.000		2.661	a	1.618
3-16-37	1.000		2.661	1.000 b	1.618
3-31-37	.889		2.366		1.439
3-31-38	1.109	1.001 B 1.027 L	2.552		1.552
Nebraska					
5- 1-17	....		1.000		1.000
1-31-34	1.013		2.332		1.389
5-25-35	1.000		2.332	.990 h	1.403
6-30-35	1.039		2.423		1.458
6-30-36	.884		2.141		1.289
6-30-37	.837		1.792		1.079
8-14-37	1.000		1.792	1.000 h	1.079
6-30-38	.997		1.787		1.075
New Hampshire					
10- 1-17	....		1.000		1.000
3-31-37	.987		1.404		.672
6-30-37	1.000		1.404	1.009 b	.666
7-15-37	1.000		1.404	1.000 b	.666
5-31-38	.981	.993 B	1.387		.658
New Jersey					
5- 1-17	....		1.000		1.000
6-30-34	1.000		2.229		1.139
5-31-35	1.000		2.229	1.000 b	1.139
6-30-35	.975		2.173		1.111
6-24-36	1.000		2.173	1.000 b	1.111
6-30-36	.970		2.107		1.077
12-31-36	.980		2.065		1.056
6- 3-37	1.000		2.065	1.000 b	1.056
6-30-37	.970		2.003		1.024
12-31-37	.970		1.943		.993
3-28-38	1.000		1.943	1.000 b	.993
5-18-38	1.000		1.943	1.000 b	.993
6-30-38	1.000		1.943		.993
7- 4-38	1.000		1.943	1.000 b	.993

TABLE I (*Continued*)

Compensation Rate Levels by States From January 2, 1934 to January 1, 1939

STATE Effective Date (1)	Manual Rates Ratio (2)	Adjustment Factors (3)	Manual Level Index (4)	Law Amendment Factor (5)	Modified Level Index (6)
New Mexico					
*6- 8-17	....		1.000		1.000
1-31-34	1.000		2.013		1.335
3-31-36	1.103		2.220		1.472
3-31-37	.748	.999 B	1.662		1.102
6-12-37	1.134 A		1.885	1.134 b	1.102
3-31-38	.963	.999 B	1.817		1.063
New York					
3-31-17	....		1.000		1.000
5-21-34	1.000		1.620	a	1.208
7- 1-34	1.103		1.787	a	1.332
9- 1-34	1.000		1.787	a	1.332
7- 1-35	(1.040) 1.068		(1.859) 1.909	1.028 i	(1.348) 1.386
9- 1-35	1.000		1.909	1.000 h	1.386
3-31-36	1.000		1.909	1.000 b	1.386
5-25-36	1.000		1.909	1.000 b	1.386
6- 6-36	1.000		1.909	1.000 h	1.386
7- 1-36	.986		1.882		1.365
7- 1-37	.981	.973 L	1.897	1.000 b h	1.376
9- 1-37	1.000		1.897	1.000 b	1.376
4-11-38	1.000		1.897	1.000 b h	1.376
7- 1-38	1.010	.993 L	1.930	1.000 b	1.400
North Carolina					
*7- 1-29	....		1.000		1.000
11- 1-34	.997	.954 L	1.237		1.237
3-26-35	1.000		1.237	1.000 h	1.237
4-24-35	1.000		1.237	1.000 b	1.237
6-30-35	1.007		1.245		1.245
6-30-36	.909		1.132		1.132
6-30-37	.889	1.009 L	.997		.997
10- 1-38	.965		.962		.962
Oklahoma					
6-29-19	....		1.000		1.000
2-15-36	1.220	.977 L	2.596		2.289
2- 1-37	.925	1.015 B	2.365		2.086
5-14-37	1.000		2.365	1.000 b	2.086
8-10-37	1.000		2.365	1.000 b	2.086
5- 1-38	.903	1.001 B 1.013 L	2.106		1.857
Pennsylvania					
8- 1-17	....		1.000		1.000
12-31-34	.963 A		1.798		1.200
12-31-35	1.048 A	.960 E	1.963		1.310
12-31-36	.978 A	.977 E	1.965		1.311
6- 1-37	1.045 A		2.053		1.370
12-31-37	1.452 A		2.981	1.700	1.170
12-31-38	1.004		2.993		1.175

TABLE I (*Continued*)

COMPENSATION RATE LEVELS BY STATES
FROM JANUARY 2, 1934 TO JANUARY 1, 1939

STATE Effective Date (1)	Manual Rates Ratio (2)	Adjustment Factors (3)	Manual Level Index (4)	Law Amendment Factor (5)	Modified Level Index (6)
Porto Rico					
*8-12-28	....		1.000		1.000
7- 1-34	.985		1.989		1.989
Rhode Island					
5- 1-17	....		1.000		1.000
1-31-34	1.000		1.040		.788
4-10-34	1.000		1.040	1.000 b	.788
2-28-35	.972		1.011	1.000 b	.766
3-31-36	1.002		1.013		.768
9-15-36	1.347 A		1.364	1.347 h	.768
4-27-37	1.000		1.364	a	.768
10- 1-37	.897		1.224		.689
10- 1-38	.913		1.117		.629
South Carolina					
*9- 1-35	....		1.000		1.000
7- 1-37	1.036 A		1.036	1.144 b	.906
9- 1-38	.958	1.014 B .995 L	.984		.860
South Dakota					
*7- 1-17	....		1.000		1.000
4-30-34	1.005		1.247		.954
5-31-35	1.068		1.331		1.019
5-31-36	.852		1.134		.868
5-31-37	.849		.963		.737
5-31-38	1.007		.970		.742
Tennessee					
*7- 1-19	....		1.000		1.000
3- 1-34	1.133	.991 B	1.523		1.318
1- 1-36	.965	.997 B .966 L	1.526		1.321
7- 1-37	.821	.992 B	1.263		1.093
7- 1-38	.982	1.010 B 1.017 L	1.208		1.046
Texas					
5- 1-17	....		1.000		1.000
3- 1-36	1.010		1.622		1.434
3- 5-37	1.000		1.622	1.000 b	1.434
5- 5-37	1.000		1.622	1.000 b	1.434
1- 1-38	1.000		1.622	1.000 b	1.434
5- 1-38	1.005		1.630		1.441

TABLE I (*Continued*)

COMPENSATION RATE LEVELS BY STATES
FROM JANUARY 2, 1934 TO JANUARY 1, 1939

STATE Effective Date	Manual Rates Ratio	Adjustment Factors	Manual Level Index	Law Amendment Factor	Modified Level Index
(1)	(2)	(3)	(4)	(5)	(6)
Utah					
*7- 1-17	....		1.000		1.000
1- 1-36	1.039		2.257		1.560
5-11-37	1.000		2.257	1.044 b	1.494
1- 1-38	1.120	1.035 B	2.443		1.617
1- 1-39	.936	1.007 B	2.270		1.503
Vermont					
5- 1-17	....		1.000		1.000
1-31-35	.925	1.002 B .946 L	1.222		.969
4-10-35	1.000		1.222	1.000 b	.969
1-31-36	1.064		1.300		1.031
2-28-37	.906		1.178		.934
6- 1-37	1.028		1.210	1.028 b	.934
6- 1-38	.943	.999 B 1.029 L	1.110		.857
Virginia					
*1- 1-19	....		1.000		1.000
3- 1-34	1.007		1.260		.939
6-19-34	1.000		1.260	a	.939
4- 1-35	.995	1.007 B	1.245		.927
4- 1-36	1.021	1.008 B	1.261		.939
6-19-36	1.000		1.261	1.000 b	.939
4- 1-37	.907		1.144		.852
4- 1-38	.985	.999 B	1.128		.840
6-21-38	1.000		1.128	1.007 b	.834
Wisconsin					
9- 1-17	....		1.000		1.000
11- 1-34	1.05		1.599		.943
9-25-35	1.000		1.599	1.062 b	.888
11- 1-35	1.000		1.599		.888
11- 1-36	.900		1.439		.799
5-28-37	1.000		1.439	1.007 b h	.794
6- 9-37	1.000		1.439	1.000 b	.794
11- 1-37	.900		1.296		.714
11- 1-38 12-31-38	1.000		1.296		.714

a—Effect of amendment negligible.
b—Indicates change in policy of administration.
h—Indicates occupational disease provisions added or altered; such changes are noted but cannot be valued from the accident table; any factor shown of same date are for other changes.
i—This law amendment factor for New York includes estimated effect of certain occupational disease provisions. Guarantee Fund provision required additional 1.2% increase in rates.
*—Indicates effective date of first compensation law.
**–New law in Arizona, not comparable to old.

COMPENSATION RATE LEVEL INDEX TABLES

a—Indexes on line "a" are for manual levels.
b—Indexes on line "b" are for modified levels—i.e., manual levels modified to eliminate effect of law amendments.

State		Base*	TABLE II July 1st Levels					TABLE III Calendar Year Levels					TABLE IV Policy Year Levels				
			Rate Level Index as of July 1st of					Rate Level Index for Calendar Year					Rate Level Index for Policy Year				
			1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1937	1936	1935	1934	1933
Alabama	a	100	91	94	117	110	100	93	106	122	105	98	94	117	119	100	96
	b	*100*	*79*	*82*	*102*	*110*	*100*	*81*	*92*	*106*	*105*	*98*	*82*	*102*	*110*	*100*	*96*
Alaska	a	100	135	135	135	135	100	135	135	135	120	100	135	135	132	105	100
	b	*100*	*111*	*111*	*123*	*123*	*100*	*111*	*116*	*123*	*113*	*100*	*122*	*121*	*120*	*103*	*100*
Arizona	a	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	b	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*
California	a	100	88	99	100	100	100	96	100	100	100	99	99	100	100	100	99
	b	*100*	*88*	*99*	*100*	*100*	*100*	*96*	*100*	*100*	*100*	*99*	*99*	*100*	*100*	*100*	*99*
Colorado	a	100	110	106	116	106	100	107	112	109	102	98	108	114	105	100	96
	b	*100*	*104*	*101*	*116*	*106*	*100*	*102*	*107*	*109*	*102*	*98*	*103*	*111*	*105*	*100*	*96*
Connecticut	a	100	91	97	96	97	100	95	96	97	99	100	97	96	98	100	100
	b	*100*	*90*	*95*	*95*	*96*	*100*	*94*	*95*	*96*	*98*	*100*	*95*	*95*	*97*	*100*	*100*
Delaware	a	100	99	99	101	100	100	99	99	101	100	100	99	100	101	100	98
	b	*100*	*99*	*99*	*101*	*100*	*100*	*99*	*99*	*101*	*100*	*100*	*99*	*100*	*101*	*100*	*98*
District of C.	a	100	94	107	112	107	100	106	111	107	101	99	110	110	104	100	100
	b	*100*	*94*	*107*	*112*	*107*	*100*	*106*	*111*	*107*	*101*	*99*	*110*	*110*	*104*	*100*	*100*
Florida	a	100	85	104	100	100	—	87	100	100	100	—	96	100	100	—	—
	b	*100*	*74*	*91*	*100*	*100*	—	*77*	*94*	*100*	*100*	—	*85*	*98*	*100*	—	—
Georgia	a	100	101	90	99	113	107	93	94	108	108	102	90	101	111	105	100
	b	*100*	*98*	*88*	*99*	*113*	*107*	*91*	*92*	*108*	*108*	*102*	*87*	*100*	*111*	*105*	*100*
Hawaii	a	100	108	108	108	100	100	108	108	103	100	100	108	107	100	100	99
	b	*100*	*107*	*107*	*108*	*100*	*100*	*107*	*107*	*103*	*100*	*100*	*107*	*107*	*100*	*100*	*99*
Idaho	a	100	74	68	82	102	102	70	79	96	102	101	72	87	102	101	100
	b	*100*	*74*	*68*	*82*	*102*	*102*	*70*	*79*	*96*	*102*	*101*	*71*	*87*	*102*	*101*	*100*
Illinois	a	100	89	99	100	100	100	92	99	100	100	100	96	100	100	100	100
	b	*100*	*89*	*99*	*100*	*100*	*100*	*91*	*99*	*100*	*100*	*100*	*96*	*100*	*100*	*100*	*100*
Indiana	a	100	73	79	93	101	100	80	92	100	100	99	86	97	101	100	99
	b	*100*	*72*	*78*	*93*	*101*	*100*	*79*	*92*	*100*	*100*	*99*	*85*	*97*	*101*	*100*	*99*
Iowa	a	100	81	96	96	97	100	95	97	96	99	100	97	96	97	100	100
	b	*100*	*78*	*96*	*96*	*97*	*100*	*92*	*96*	*96*	*99*	*100*	*94*	*96*	*97*	*100*	*100*

(line "a" the manual level)

COMPENSATION RATE LEVEL INDEX TABLES

TABLE II
July 1st Levels

TABLE III
Calendar Year Levels

TABLE IV
Policy Year Levels

State		Base*	Rate Level Index as of July 1st of					Rate Level Index for Calendar Year					Rate Level Index for Policy Year				
			1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1937	1936	1935	1934	1933
Kansas	a	100	94	105	112	109	107	103	110	110	108	102	108	111	109	106	99
	b	*100*	*94*	*105*	*112*	*109*	*107*	*103*	*110*	*110*	*108*	*102*	*108*	*111*	*109*	*106*	*99*
Kentucky	a	100	90	88	107	111	100	91	107	110	103	97	99	110	109	100	93
	b	*100*	*86*	*84*	*107*	*111*	*100*	*87*	*104*	*110*	*103*	*97*	*95*	*109*	*109*	*100*	*93*
Louisiana	a	100	74	74	80	95	100	74	78	91	98	97	75	83	95	100	94
	b	*100*	*74*	*74*	*80*	*95*	*100*	*74*	*78*	*91*	*98*	*97*	*75*	*83*	*95*	*100*	*94*
Maine	a	100	99	103	103	100	100	100	103	101	100	97	102	102	100	100	94
	b	*100*	*99*	*103*	*103*	*100*	*100*	*100*	*103*	*101*	*100*	*97*	*102*	*102*	*100*	*100*	*94*
Maryland	a	100	77	80	85	90	100	80	84	89	97	100	82	87	92	100	101
	b	*100*	*77*	*80*	*85*	*90*	*100*	*80*	*84*	*89*	*97*	*100*	*82*	*87*	*92*	*100*	*101*
Massachusetts	a	100	85	93	93	100	100	89	93	98	100	100	93	95	100	100	99
	b	*100*	*80*	*90*	*90*	*100*	*100*	*83*	*89*	*96*	*100*	*100*	*88*	*92*	*99*	*100*	*99*
Michigan	a	100	92	98	100	100	100	95	99	100	100	98	98	100	100	100	96
	b	*100*	*92*	*98*	*100*	*100*	*100*	*95*	*99*	*100*	*100*	*98*	*98*	*100*	*100*	*100*	*96*
Minnesota	a	100	84	99	108	109	100	91	103	108	105	97	99	108	109	100	90
	b	*100*	*83*	*98*	*107*	*109*	*100*	*91*	*103*	*108*	*105*	*97*	*98*	*107*	*109*	*100*	*90*
Missouri	a	100	100	99	101	102	100	100	100	102	101	99	99	101	102	100	98
	b	*100*	*100*	*99*	*101*	*102*	*100*	*100*	*100*	*102*	*101*	*99*	*99*	*101*	*102*	*100*	*98*
Montana	a	100	119	111	124	116	108	113	120	118	111	103	114	122	115	107	100
	b	*100*	*119*	*111*	*124*	*116*	*108*	*113*	*120*	*118*	*111*	*103*	*114*	*122*	*115*	*107*	*100*
Nebraska	a	100	78	78	93	105	101	80	93	103	102	101	85	99	103	101	100
	b	*100*	*78*	*79*	*94*	*106*	*101*	*81*	*94*	*104*	*102*	*101*	*86*	*100*	*104*	*101*	*100*
New Hampshire	a	100	98	99	100	100	100	99	100	100	100	98	99	100	100	100	93
	b	*100*	*97*	*98*	*100*	*100*	*100*	*98*	*99*	*100*	*100*	*98*	*98*	*100*	*100*	*100*	*93*
New Jersey	a	100	87	90	95	98	100	89	94	97	100	100	91	96	99	100	98
	b	*100*	*87*	*90*	*95*	*98*	*100*	*89*	*94*	*97*	*100*	*100*	*91*	*96*	*99*	*100*	*98*
New Mexico	a	100	90	94	110	100	100	93	100	103	100	100	95	105	100	100	100
	b	*100*	*80*	*83*	*110*	*100*	*100*	*82*	*94*	*103*	*100*	*100*	*85*	*104*	*100*	*100*	*100*
New York	a	100	118	117	116	118	110	116	115	116	111	101	115	116	115	105	100
	b	*100*	*115*	*113*	*112*	*113*	*110*	*113*	*112*	*113*	*109*	*101*	*112*	*113*	*112*	*105*	*100*

COMPENSATION RATE LEVEL INDEX TABLES

TABLE II — July 1st Levels; TABLE III — Calendar Year Levels; TABLE IV — Policy Year Levels

State		Base*	Rate Level Index as of July 1st of					Rate Level Index for Calendar Year					Rate Level Index for Policy Year				
			1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1937	1936	1935	1934	1933
North Carolina	a	100	84	84	96	105	100	86	95	104	103	99	90	101	105	101	97
	b	*100*	*84*	*84*	*96*	*105*	*100*	*86*	*95*	*104*	*103*	*99*	*90*	*101*	*105*	*101*	*97*
Oklahoma	a	100	102	114	125	100	100	111	120	110	100	100	115	122	100	100	100
	b	*100*	*102*	*114*	*125*	*100*	*100*	*111*	*120*	*110*	*100*	*100*	*115*	*122*	*100*	*100*	*100*
Pennsylvania	a	100	160	110	105	96	100	160	108	105	96	100	134	106	101	98	95
	b	*100*	*94*	*105*	*105*	*96*	*100*	*94*	*105*	*105*	*96*	*100*	*100*	*105*	*101*	*98*	*95*
Porto Rico	a	100	99	99	99	99	99	99	99	99	99	100	99	99	99	99	94
	b	*100*	*99*	*99*	*99*	*99*	*99*	*99*	*99*	*99*	*99*	*100*	*99*	*99*	*99*	*99*	*94*
Rhode Island	a	100	118	131	97	97	100	121	131	107	99	100	127	127	98	100	100
	b	*100*	*87*	*97*	*97*	*97*	*100*	*90*	*97*	*97*	*99*	*100*	*94*	*97*	*98*	*100*	*100*
South Carolina	a	100	104	104	100	—	—	103	102	100	100	—	103	100	100	—	—
	b	*100*	*91*	*91*	*100*	—	—	*90*	*95*	*100*	*100*	—	*92*	*99*	*100*	—	—
South Dakota	a	100	78	78	91	107	101	79	90	104	102	100	83	98	105	100	100
	b	*100*	*78*	*78*	*91*	*107*	*101*	*79*	*90*	*104*	*102*	*100*	*83*	*98*	*105*	*100*	*100*
Tennessee	a	100	91	95	115	114	114	96	112	114	114	105	105	115	114	112	100
	b	*100*	*91*	*95*	*115*	*114*	*114*	*96*	*112*	*114*	*114*	*105*	*105*	*115*	*114*	*112*	*100*
Texas	a	100	102	101	101	100	100	101	101	100	100	100	101	101	100	100	100
	b	*100*	*102*	*101*	*101*	*100*	*100*	*101*	*101*	*100*	*100*	*100*	*101*	*101*	*100*	*100*	*100*
Utah	a	100	112	104	104	100	100	108	104	102	100	97	104	104	100	100	95
	b	*100*	*108*	*100*	*104*	*100*	*100*	*104*	*101*	*102*	*100*	*97*	*100*	*103*	*100*	*100*	*95*
Vermont	a	100	89	97	104	98	100	95	101	100	99	98	97	103	98	100	95
	b	*100*	*86*	*94*	*104*	*98*	*100*	*93*	*99*	*100*	*99*	*98*	*95*	*103*	*98*	*100*	*95*
Virginia	a	100	90	91	101	99	101	91	98	100	100	100	94	100	100	101	99
	b	*100*	*90*	*91*	*101*	*99*	*101*	*91*	*98*	*100*	*100*	*100*	*94*	*100*	*100*	*101*	*99*
Wisconsin	a	100	85	94	105	105	100	88	98	105	103	99	93	103	105	101	96
	b	*100*	*80*	*88*	*99*	*105*	*100*	*83*	*92*	*99*	*102*	*99*	*87*	*97*	*101*	*101*	*96*
Total	a	100	107	105	105	106	103	109	105	106	103	100	107	106	106	102	98
	b	*100*	*98*	*102*	*103*	*104*	*103*	*99*	*103*	*104*	*103*	*100*	*102*	*105*	*105*	*102*	*98*

FEDERAL VS. STATE SUPERVISION OF INSURANCE*

BY

RAINARD B. ROBBINS

This topic has been discussed for nearly a century—in fact ever since insurance began to take a prominent place in the business life of the country. The subject has been worn threadbare by theorists, by insurance practitioners of one kind or another, and by learned judges in opinions that have been among the most carefully reasoned. The question has been declared settled time and time again and anyone who starts digging into the cases and reading the arguments and opinions will soon appreciate the basis for the view that if there is anything *judicially* certain in our ever-changing business life it is the dictum of Mr. Justice Field in Paul *vs.* Virginia that, strange as it may seem, *insurance is not commerce.* This was and has remained the basis of the Supreme Court determination that insurance cannot be reached by Congress under the Commerce Clause of the Constitution.

It seems that Congress has never legislated regarding the business of insurance otherwise than to levy income taxes. Each of the many decisions that have reiterated the one of Paul *vs.* Virginia has resulted from a contest over a state's effort to tax or otherwise interfere with the activities of an insurance company or its representative in a state other than that of its domicile. Repeatedly the view has been expressed that a different decision might appear if the same problem should arise with a Federal statute at stake.

Settled as this question may seem to be, it is not difficult to see why it keeps bobbing up. Company officers become exasperated by the requirements of laws and supervising officials of a large number of different states. These requirements may be merely troublesome because of conflict between them or because of the

* This paper was originally submitted as a thesis under Rule 6 of the Rules Regarding Examinations for Admission to the Society. It was accepted for the *Proceedings* by the Committee on Papers, with the approval of the Council.

immense amount of detail that some of them require. On the other hand, they may be unreasonably burdensome, discriminatory, confiscatory, or capricious. Each of these adjectives and many others that sound no better have been repeatedly applied.

State officials have plenty of cause for irritation in their efforts to prevent the operation of weak or unscrupulous organizations that may or may not comply with the laws of their home states. Under such circumstances the first thought is likely to be some control that shall be more sweeping than that of separate states.

Company and state officials frequently resent the activities of supervising authorities of other states when their desire to examine a company seems to have a selfish motive or to reflect upon the good name of the company or the efficiency of the officials of its home state. Pride, like hope, springs eternal in the human breast.

A commissioner of insurance on the other hand has a responsibility with regard to the companies licensed to do business in his state. His legal responsibility may be determined by statutes, but the citizens look to him for protection regardless of statutes. Yet that intangible principle of official politeness called "comity between states," together with its inseparable companions that lay no claim to politeness, retaliatory legislation and retaliatory official action, often place conscientious commissioners in embarrassing situations.

And when we come to an impasse in business life, we are all pretty much alike—we are apt to say: "There ought to be a law." Sometimes it is obvious that a law in a single state cannot turn the trick and then we appeal for Federal help. But this is by no means a complete picture. Facility of travel and communication and contacts of a business as well as a social nature familiarize us with methods of other countries. The insurance business is not only national; much of it is distinctly international. So we read and ask and come to know how other countries handle similar problems. We find that supervision elsewhere is largely on a national scale and this adds to our wonder as to methods here.

Before following this thought further, it may be of interest to review briefly the litigation on this question, to find just what has been involved, what motives have prompted discussion, how attitudes have gradually changed and what would be involved in change of rules of law on this point.

THE LAW

Section 8 of the first article of the Constitution of the United States delegates to Congress "power . . . to regulate commerce with foreign nations and among the several states, and with the Indian tribes." Just after the Civil War some fire insurance companies of New York wanted to find out just what significance this constitutional provision had, if any, with reference to their business. A Mr. Samuel Paul was appointed agent for them in Virginia in the year 1866. He filed his authority from them with the state auditor and applied for a license, offering to comply with all state requirements so far as he was concerned. But the state law required that in order to do business in the state a company must deposit from $30,000 to $50,000 in bonds of specified type with the state—a requirement that did not apply to local companies—and this the New York companies failed to do. Although Paul was refused a license, he proceeded to solicit business and actually completed, for a Virginia client, a fire insurance contract with one of these non-admitted companies. He was convicted and fined $50. Apparently this decision has gone far in determining the method of supervision of insurance companies in the United States.

These New York companies argued through Paul that they, as citizens, were being deprived by the State of Virginia of the right guaranteed by Article IV, Section 2, of the Constitution that "the citizens of each state shall be entitled to all the privileges and immunities of citizens in the several states." Furthermore, they contended that they were engaged in interstate commerce and hence that the right of Congress to regulate them made it improper for the State of Virginia to interfere with their business. But the Supreme Court said: "No"; New York corporations are not citizens within the meaning of the Constitution and, furthermore, insurance isn't commerce so it can't be interstate commerce.

And subsequent to that momentous decision of 1868, opinions in a long list of cases that have reached the Supreme Court have consistently quoted it with approval until the expressions *Paul* vs. *Virginia* and *insurance is not commerce* are almost inseparable. Yet many will agree with the statement of Bernard C. Gavit in his treatise "The Commerce Clause": "The expression 'insurance is not commerce' has become almost a classic. There is nothing more to be said for it."

The wonder at first thought is, of course, how can there be so much ado about such a simple matter. Surely it should be possible to find what the word "commerce" means and to distinguish the earmarks of interstate commerce. But no. This has been a contest of over half a century. Wise indeed was the Constitutional Convention in not attempting to define this and many other terms similarly used in the Constitution. Any attempt to enumerate the varieties of commerce at that time must have omitted the telephone, telegraph, and radio. To appreciate the growing pains of a developing idea, it is only necessary to read the opinions in some of these cases that have brought in question the Commerce Clause. Yet the practical fact is that we are bound by these decisions as to what this word "commerce" means. That commerce is more than trade and traffic was appreciated early. Chief Justice Marshall, whose opinions have become classics and have done so much to give direction to our constitutional developments, introduced a word in his discussion of commerce that has proved to be of sufficient generality to ease many unforeseen difficulties,—the word "intercourse." In Gibbon *vs.* Ogden he said: "Commerce undoubtedly is traffic, but it is something more; it is intercourse. It describes the commercial intercourse between nations, and parts of nations in all its branches."

It is not intended here to present, or even to summarize, the many legal discussions as to what commerce is, or is not; nor shall we try to reach an opinion as to whether or not this term should comprehend the business of insurance. It may be of interest, however, to point out that the real contention of the Paul *vs.* Virginia decision was not the cryptic ultimatum that is so glibly quoted, but rather that the *issuing of a policy of insurance* is not a transaction of commerce. The opinion stated: "The policies do not take effect—are not executed contracts—until delivered by the agent in Virginia. They are, then, local transactions and are governed by the local law." Little attention was paid to the *intercourse* that is involved in the conduct of an insurance business as contrasted with the final act that brings into being an insurance contract. Yet the decision has carried enormous weight as a precedent in later contests despite the fact that in them the intercourse and traffic involved in a national or international insurance business have been stressed.

Points at Issue in Different Cases

It may be of interest and possibly of some value to note the points that have been at issue in some of these insurance cases. As stated above, the question in the case of Paul *vs.* Virginia (8 Wallace 168) was whether or not a foreign fire insurance company could do business in Virginia without making a deposit as required by a Virginia statute; the decision was that Virginia could require this.

In the Philadelphia Fire Association *vs.* New York (119 U. S. Reporter 110) the question was whether or not the State of New York could require the payment of a retaliatory tax from a Philadelphia company if it did business in New York. The decision was that such a requirement was not in conflict with the guarantee of equal rights to citizens, contained in the Fourteenth Amendment to the Constitution.

In Hooper *vs.* California (155 U. S. 648) it was determined that California's law is not in conflict with the Constitution in making it a misdemeanor for a person in California to procure insurance for a resident in the state from a foreign insurance company that has not filed the bond required by the state of companies doing business in the state. Much hinged on the place of contracting; it seems that the contract was completed in California. A dissenting opinion pointed out that the broker was acting for his principal, a brokerage firm of New York, and not for the insurance company, a Massachusetts corporation; that a citizen may employ an agent to do what he can do himself; and that it would be legal for a citizen to procure a policy by mail, or for delivery to be made to him by someone acting under instructions from the company. The majority held that the state law was not a regulation of commerce and hence was not repugnant to the Commerce Clause.

In Allgeyer *vs.* Louisiana (165 U. S. 578) a Louisiana statute was in question that attempted to prevent a citizen from making a contract with a non-licensed company while the citizen was in the state, even though the contract was completed in New York. The Supreme Court overruled this attempt but in so doing reiterated that "there is no doubt of the power of the state to prohibit foreign insurance companies from doing business within its limits."

In New York Life Insurance Company *vs.* Cravens (178 U. S. 389) it was decided that a contract completed in Missouri was subject to the provisions of the Missouri law as to policy provisions regardless of a statement in the policy that it was to be considered a New York contract. The contest was over the amount of a death claim. The company contested the right of Missouri to interfere, on the ground that interstate commerce was involved.

In New York Life *vs.* Deer Lodge County (231 U. S. 495) contest arose over a tax levied by the state of Montana on the excess of premiums paid over losses and ordinary expenses incurred within the state. The company argued that this was a burden on interstate commerce but made no headway. There were two dissenters from the decision, Charles Evans Hughes, and Willis Van Devanter.

Two noted cases that have nothing to do with insurance have been widely discussed as bearing on the point at issue.

The Lottery Case (188 U. S. 321) is the only one here cited in which a Federal statute was in question. The statute was designed to prevent the carriage of lottery tickets from one state to another by common carrier. The Court decided that "lottery tickets are subjects of traffic among those who choose to sell and buy them and that the carriage of such tickets by independent carriers from one state to another is, therefore, interstate commerce"; and that the power of Congress to regulate interstate commerce gave it sufficient authority to prohibit such carriage.

In the other case, International Text Book Company *vs.* Pigg (217 U. S. 91), a correspondence school student of Kansas was sued in Kansas for failure to complete payment according to contract for a course of instruction. Pigg did not deny the indebtedness but contended that the company could not sue in Kansas because it was not doing business there. The company admitted that it was not doing business in Kansas but contended that it could sue there. The Court held that interstate commerce was involved and that the suit could be maintained.

Rationalization

We should expect to find running through the decisions summarized above some of the fundamentals by which our judicial system helps to keep society on an even keel. The crux of the matter seems to lie in the unexpressed premise that regulation of interstate insurance is desirable and in the fact that at the time of these decisions no Federal regulation existed or had been attempted. A state might be unreasonable about what it expected of an outside company, but such a company should not be footloose just because Congress had not legislated. Otherwise a company might incorporate in a state wherein it expected to do little or no business and thus be subject to no regulation whatever regarding the bulk of its business; society could thus be deprived of official aid in investigating the stability of corporations organized for the purpose of selling promises.

As we see it now, at the time Paul was prosecuted in Virginia, a change to Federal supervision of interstate insurance would not have involved a serious disturbance of established practice. But as the business has grown and state supervision has become more and more thoroughly established, it has been recognized that a reversal of the early decisions would be a serious matter. That the court has given consideration to this is indicated in the opinion accompanying the decision in the case of the New York Life Insurance Company *vs.* Deer Lodge County. The following words are significant:

> "If we consider these cases numerically, the deliberation of their reasoning and the time they cover, they constitute a formidable body of authority and strongly invoke the sanction of the rule of stare decisis....
>
> "For over 45 years they (previous cases) have been the legal justification for such legislation. To reverse the cases, therefore, would require us to promulgate a new rule of constitutional inhibition upon the states and which would compel a change of their policy and a readjustment of their laws. Such result necessarily urges against a change of decision."

Here we find ideas expressed that have doubtless had their influence in the germination of many other decisions, even though the records make no such disclosure.

Development of State Supervision of Insurance

Effective supervision of insurance began when Elizur Wright was appointed one of the two commissioners of insurance in the

State of Massachusetts in 1858. In many states the principal purpose of attention to insurance companies has been to collect taxes; it is therefore significant that the start made by Wright in Massachusetts was on quite different grounds. He was interested primarily in developing safeguards for the benefit of the insuring public. He recognized the inability of the individual to acquaint himself with the merits of a particular insurer. He realized how serious was the failure of an insurance promise, especially because that failure would be felt at just the time when the insured could least help himself. He emphasized particularly the plight of widows and orphans when life insurance companies failed.

Here, he reasoned, was a service for which there was a crying need. The importance of insurance in business and social life was growing rapidly; few realized the importance of guiding and controlling it; few realized the danger from well meaning groups of individuals who were being attracted by this newly discovered lucrative activity, but who were quite innocent as to the safeguards necessary for the success of their undertakings. Aside from having an understanding of these matters that was rare at that time, Wright was a persistent, tenacious fighter and an indefatigable worker. However much we may differ with his views, we must admire his insight, his selflessness and his industry; and it is to the eternal credit of the regulation of the insurance business that its beginning was made for the best interests of all and with no thought of fastening on the business unreasonable burdens of taxes and fees or narrow gauged restrictions for the advantage of corporations of particular states.

New York was second to establish an insurance department. This step was opposed by influential companies in 1856 but urged by them in 1859 when the necessary legislation was enacted. Their conversion was due to the finding of the state auditor that six fire insurance companies were insolvent.

In the 60's and early 70's the formation of insurance companies was rapid to the point of recklessness and this led various states to make starts in insurance legislation and supervision. It is an interesting fact that many, if not most, of these states followed either the Massachusetts or the New York precedent, many sections of the laws being copied verbatim from these prototypes. Probably the wide variations that exist to-day in the rules of supervision in different states is due to arrested development, especially in those states having few local companies.

Growth in Sentiment for Federal Supervision

To return to our principal topic, it was when companies began their feverish expansion to do business in various states that both company and state officials appreciated the complications caused by each state undertaking to supervise all the companies doing business within its borders, whether of local or outside domicile. So, as early as 1865, the commissioners of insurance of both Massachusetts and Connecticut advocated Federal supervision of insurance; and the organization of the National Convention of Insurance Commissioners in 1871 was for the express purpose of seeking uniformity of records and other details of supervision by different states. This was only the beginning. From that time until after the Armstrong investigation, discussion of the question of Federal supervision was almost continuous. It came up many times before the N. C. I. C. For a number of years an insurance magazine entitled "Views," published at Washington, D. C., argued persistently for Federal supervision. A perusal of the issues of this magazine will give the reader about every conceivable argument in support of this proposal.

In 1865 Wright thought that insurance, being of widespread interest, should be secure against the adverse operation of local causes; that simplicity required a national bureau; and that a state could probably not protect itself as well with reference to insurers of other states as it could be protected by the Federal Government. Commenting in 1870 on the Paul *vs.* Virginia decision, Wright said that loss of nationality was a very serious matter and suggested that the guardians of life insurance should bestir themselves to prevent this if possible.

Commissioner William A. Frick of Wisconsin was an ardent advocate of Federal supervision. In his 1895 report he stated that there were many reasons for national regulation and few objections to it. He complained of forty-nine different insurance codes, methods of taxing, and kinds of supervision, and said there was no attempt at uniformity.

While some of the leading state supervisors have favored Federal supervision and have brought their thoughts before the

N. C. I. C. from time to time, it is only to be expected that the idea of states' rights should be strong in the minds of most of these state officials.

In recent years there has been a predominance of this sentiment and it has from time to time been defended in admirable fashion. In 1920 Commissioner Young of North Carolina in addressing the N. C. I. C. expressed the view that Federal supervision would hardly come soon and that when it comes it will be received with no greater favor than that now accorded to state supervision. In discussing Mr. Young's address, Commissioner Mansfield of Connecticut said he thought that Federal supervision would be a good thing if it could be made thorough and efficient and if it should replace state supervision, but he did not think this possible. Superintendent Phillips of New York went further, holding that even if the ideal conditions specified by Commissioner Mansfield should obtain, he would still favor state supervision, that the states would be reluctant to surrender to the Federal Government the power to regulate business within their own territories and that this power should remain in the state.

The remarks of the present Superintendent of Insurance in the State of New York on this subject are worthy of careful attention. In his report to the Legislature dated January 15, 1936, Mr. Pink reviewed the development of insurance supervision, called attention to the interstate character of the insurance business and discussed in some detail, although briefly, the question of Federal supervision. While he said that "in many ways the logic of Federal control is unassailable," he added that "there are important considerations militating against it." Among these were the Supreme Court decisions, the fact that "the insurance industry as a whole is bitterly opposed to Federal supervision," the danger of jurisdictional conflicts, the reluctance of states to give up their authority, and the difficulty of central supervision in meeting local needs.

Legislative Efforts

From time to time Federal officials and legislators have taken an interest in this question. As early as 1871 the Treasurer of the United States reported to the Secretary of the Treasury on the need of Federal regulation of insurance. In 1892 a bill was introduced in Congress by John M. Pattison, then President of the Union Central Life Insurance Company, that would have created a national bureau with power to license a company doing business in any state, subject to the requirements of its home state and of this bill. This was followed in 1897 by the "Platt Bill" of similar import, but without success.

Congressional initiative appeared in a different way in 1903. As originally contemplated the Department of Commerce and Labor was to have a bureau of insurance. This was supported by the life insurance companies through Mr. Charlton T. Lewis, a member of the Chamber of Commerce of New York, who said in part: "It is simply the needless and obviously superfluous burden of multiplied, unenlightened, and oppressive supervision which we want to do away with." The Committee on Interstate and Foreign Commerce of the House of Representatives went on record in reporting the bill for the creation of this Department as follows:

> "The insurance interests of our country have become so great, and the business of insurance is so essentially a matter of interstate business, and hence largely beyond any effectual control by the State authorities, that your committee has recommended the establishment of a bureau of insurance.
>
> "It seems evident that it is time for the national government to take such notice of, and exercise such control over, insurance companies as it may be entitled to under the Constitution, to the extent, at least, of the publication of information of general interest."

President Theodore Roosevelt supported this project and included the following in his message to Congress in December, 1904:

> "The business of insurance vitally affects the great mass of the people of the United States and is national and not local in its application. It involves a multitude of transactions among the people of the different States and between American companies and foreign governments. I urge that the Congress carefully consider whether the power of the Bureau of Corporations cannot constitutionally be extended to cover interstate transactions in insurance."

But Paul *vs.* Virginia arose to haunt the legislators again and all regulatory power over insurance was stricken from the new bureau.

Support of Dryden and Kingsley

It seems that between the years 1900 and 1910 sentiment for Federal supervision reached its zenith. A number of leading company executives advocated it, the evidence indicating that their objective was really to be free from the known burden of state supervision under the conditions then existing. Among the most thorough presentations of the issue were those made by presidents of two prominent life insurance companies, Senator John F. Dryden, founder of the Prudential Insurance Company of America and Darwin P. Kingsley, President of the New York Life Insurance Company.

Senator Dryden wrote and talked much on the subject and introduced a bill in the United States Senate in January, 1906, embodying his ideas. In the volume of his addresses and papers entitled "Life Insurance and Other Subjects" are published an address delivered in 1904 before the Boston Life Underwriters Association entitled "The Regulation of Insurance by Congress" and an address at a banquet of the Board of Trade in 1906 entitled "The Commercial Aspects of Federal Regulation of Insurance." The first of these is of particular interest in that, in addition to setting forth Senator Dryden's arguments, it gives a summary of the discussion of the subject reaching back to the early 1860's. Throughout this address Dryden used the method of quoting views and recording the acts of various advocates, although he did not hesitate to state his own opinions. He speaks of overlegislation, conflicting legislation, prohibitory taxation, forced loans and deposits, and unreasonable advertising fees. He mentions Alexander Hamilton's statement in his argument on the constitutionality of the United States bank that not all of the powers conferred in the Constitution are specifically mentioned in it and points out that in his list of "palpable omissions" that would "admit of little if any question" Hamilton included "the regulation of policies of insurance." Dryden's second address above mentioned is more of an argument and less of a history. He calls attention to the enormous growth in the insurance business since the Constitution was adopted, how it has become not only national but international in character, and the centralized control of this business that exists in other countries; in part, he says: "Insurance is to-day, as it has been for centuries, a part of the law merchant of the principal commercial nations, and in every important country except ours insurance is the subject of regulation by the national or supreme government."

As indicative of the sentiment at that time Senator Dryden records the results of a questionnaire that he sent in 1905 to some 8,000 associations and individuals asking four questions devised to disclose opinion as to Federal supervision. Widespread interest was indicated by the fact that he received 7,454 replies to the question "Do you endorse the suggestion of President Roosevelt that insurance companies engaged in interstate insurance business should be regulated by and brought under the control of the Federal Government?" Of these replies, more than 88% were favorable.

Mr. Kingsley threw his full strength as President of the New York Life Insurance Company into an effort to have recognized the merits of his contentions as to the national character of the insurance business. Two of the outstanding contests on this question that reached the Supreme Court of the United States arose through his company. He wrote and spoke often and forcefully on the subject. In a collection of his works entitled "Militant Life Insurance" are reproduced two such addresses, one delivered in 1909 and one in 1910, entitled respectively "Insurance Supervision and National Ideals" and "Life Insurance and Our Dual Citizenship." The 1909 address is reprinted in "Yale Readings in Insurance" and in the *North American Review* for April, 1909. It is a scholarly study of the Constitution of the United States, giving some interesting sidelights on the difficulties of its adoption and the emergencies it has faced. He reviews the insurance cases that have reached the Supreme Court and discusses the question of whether or not the insurance business is commerce.

In his interesting and valuable book published in 1909 entitled "The Romance of Life Insurance," William J. Graham, now Vice-President of the Equitable Life Assurance Society, included a chapter on life insurance supervision. This is a serious indictment of state supervision as it existed at that time; a statement of the position of the advocates of national supervision; a description of efforts to obtain more nearly uniform state legislation; and a discussion of a plan that was proposed in Congress to strengthen supervision of the District of Columbia over all companies operating there, as a means of a centralized control over a substantial proportion of the companies that operate widely. Mr. Graham contended that "the policyholders paying to more than forty different States for supervision are humbugged more than forty times" in that they profited by thorough supervisions from not a single state. He spoke of unwarranted dictation and ignorant and prejudiced public officials. This chapter is, however, distinctly constructive in tone and it is gratifying now to realize the advance that has been made since that time through the increased cooperation of state insurance officials that was suggested in Mr. Graham's final sentence as follows:

> "What has made for uniformity and unity of action in the recent past among State insurance departments, largely through the devoted efforts of a few able commissioners, is but an earnest of what can be accomplished in the future."

Several years earlier Miles M. Dawson, noted as the actuarial consultant of the Armstrong Committee, advocated Federal supervision in his book "The Business of Life Insurance." This was in 1905, and he said "Life insurance interests, as a whole, are warmly favourable to National supervision."

Mr. Dawson wrote at length on the development of supervision in Great Britain as well as in this country. He discussed a number of evils that had grown up in state supervision, including unjust and inefficient examinations, the weakness of comity between states when one state is inefficient or worse, use by states of actuaries who are pecuniarily interested in the companies they examine, and conflicting rulings of state officials of the same or different states.

Decline in Sentiment for Federal Supervision

Insurance as an institution has made much progress during the last quarter of a century. It has made strides in volume, and hence in magnitude of service, beyond the wildest dreams of the most confirmed optimists. It has thus belied the prophecies of those who were convinced that a continuation of state supervision would stifle expansion. But state supervision has also made strides; forces of cooperation have been at play that were not contemplated and through these various agencies a confidence has developed, on the part of the insuring public, in the value of insurance and the integrity of the companies, that could not have been foretold in the year 1910 or earlier.

Insurance has taken root as an essential institution in our modern business and social life and has done so under a regime of state supervision. And so, the pragmatic test has been applied to our crude method of forty-nine different mentors. Our method has worked. And today little is heard in the way of propaganda for Federal control of interstate insurance. Of course, this is not the whole story. There has for long been a spirit of hopelessness as to the possibility of a change in the attitude of the courts; there has been little faith that Federal supervision would replace state interference but rather a fear that it would be merely an added burden; there has been doubt as to the prospect of superiority of Federal supervision. All of these forces have had their influence, but if the business had not prospered as it did up to the time of the great depression, the attitude toward state supervision might have been different.

One of the most recent pleas for government regulation is found in a chapter with that title in "The Story of NYLIC," a book by Lawrence F. Abbott, published in 1930 by the New York Life Insurance Company. In it is repeated a statement by Darwin P. Kingsley made in 1909 as follows:

> "An applicant for life insurance lives in New Jersey and I have a policy on his life ready for delivery on my desk. If I telegraph him about the policy, the message is interstate commerce. If I telephone him about the policy, that is interstate commerce. But if I send the policy itself to him by hand or through the mails or by express, that is not interstate commerce."

The closing paragraph of this chapter states a suggestion that is credited to Theodore Roosevelt and to President Hadley of Yale that life insurance companies be made Federal rather than state corporations.

We are indebted to an address by U. S. Brandt, President of the Ohio State Life Insurance Company, before the American Life Convention in 1933 for a discussion of various aspects of this whole question. His study is sufficiently recent to reflect the relative weight now usually given to different points of view. Anyone undertaking a thorough investigation along this line would do well to start with Mr. Brandt's article and the bibliography that he appends.

Forces at Play

Testing and Reorganization. Let us now take a look at some of the forces that have saved insurance from the fate predicted for it thirty years ago by those who thought it could not survive under state supervision. In the first place, there can be little doubt that insurance as an institution has profited from the overhauling it received between 1905 and 1910. The criticisms of that period led to a searching of values that produced a distinctly better institution. In many ways insurance had grown up like Topsy. Development had been rapid. Precedents were not available for guidance. Competition was rampant. As a result its foundations were inadequate; its guidance was non-professional; its objectives were commensurate with neither its possibilities nor its responsibilities. As we see it now, insurance could never have had the expansion that it has had and never could have fulfilled its function as it has, had it not been for the rigid scrutiny that was forced upon it thirty years ago.

Cooperation. In the second place, probably nothing has been more important than the development of the attitude of cooperation that has taken place during this period. The N. C. I. C. existed long before. The rapid growth of the business and its national character forced continually increasing cooperation between different states and the mechanism of the National Convention was ready at hand to make this possible. Superintendent Pink speaks in his 1936 Report of the importance of the National Association of Insurance Commissioners and adds: "Without unifying influence the presence of forty-nine independent supervisory bodies within the borders of the United States might well create intolerable situations." And a little later he warns that "if the machinery which coordinates state supervision proves inadequate to bear its load, Federal control in one form or another will probably result."

But the N. C. I. C. has not been alone as a force for coordination or cooperation. Many other national organizations have been formed during this period. Agency organizations; company presidents' organizations; financial officers' organizations; actuarial organizations; underwriters' organizations; rating organizations;—some of these existed before but all of them have learned much about cooperation during the last thirty years and many of them have cooperated in one way or another with state supervising officials and with the N. C. I. C. One of the most potent organizations is the Committee on Blanks of the N. A. I. C. This Committee not only welcomes suggestions from companies, but also welcomes the presence of company representatives at many of its meetings.

And right here is the place to mention the substantial number of shifts of individuals from company service to state service and vice versa. State laws have at times put a curb on such transfers —and with reason—but there is much to be said for them. There are many leading company officers to-day who served for years in the capacity of state supervisors. While there may be dangers in this shifting, there are also values in it. If a conscientious state employee enters company service, he is bound to carry with him training in the rules of the game that are necessary for the best interests of all concerned; and the effect will surely be all to the good for the conduct of the business.

Uniformity. To obtain a high degree of uniformity in the laws, rules, and practices of different states is at once very important for the comfort of insurance companies and their clients, and very difficult for the insurance supervisors. As a rule the commissioner of insurance is a political appointee and his official life is usually very short. It is, therefore, difficult for a good man to have a lasting influence and easy for political considerations and personal ambitions to interfere with efforts to bring the laws and practices of a particular state in line with those of others. A few states have large enough insurance businesses to have built up strong permanent organizations in their insurance departments; but this is not true of many and, besides, size is by no means a guarantee of quality. All states have equal votes in the National Association of Insurance Commissioners and ambition leads representatives of all states to seek prominence in the Association's deliberations.

The wonder is that the Association has been able to make the headway and to command the respect that it can rightly claim.

One of the most promising prospects of uniformity appears through the cooperation of the American Bar Association. This organization has formulated an insurance code and has suggested its enactment by various states that have recognized the need for a revision of their codes.

Possible Shortcomings of Federal Supervision

In the main the advocates of Federal supervision have been trying to get away from something—the troubles of state supervision —and have probably not analyzed thoroughly the troubles that might beset them under Federal supervision. The common conviction to-day is that there would be no assurance of freedom from state supervision even if the Government stepped in. This was pointed out by Mr. Brandt and again by Superintendent Pink in his 1936 Report to the New York legislature. The usual suggestion has been supervision by the state of domicile and by a Federal bureau, but not by other states. Another suggestion is that of Federal incorporation; a third is extension of the supervision exercised by the Insurance Department of the District of Columbia.

To simplify the discussion, consider for a moment the situation under Federal incorporation. There would be no state supervision at all unless it be to the extent necessary to collect taxes. Here we must meet squarely the question—what are the relative dangers of drastic legislation by states and by the Federal Government? Is it better to deal with forty-nine supervisors, any one of whom may spring a surprise at any time, or to deal with one unit and take the consequences of its decisions applying, as they would, country-wide? The choice is not an easy one. Insofar as we must experiment, there is much to be said for experimentation in small units. On the other hand, it would be far simpler and advantageous in some other respects to have one set of rules, even though we might recognize them as second rate, rather than to have many different sets, each of which might be superior in some particular.

Again, many questions can be handled more expeditiously and probably more intelligently by local officials with a background of long acquaintance than by a distant bureau at Washington. Of course, this argument is partly answered by the prospect that under Federal supervision a large number of district offices would be necessary.

Turning now to the possibility of Federal supervision in addition to state scrutiny, we reach the acme of the undesirable from the standpoint of the companies. The reason given by Superintendent Pink for the "bitter opposition" of the insurance industry to Federal supervision, was fear of "the superimposition of another regulatory body without the abolition of the existing state agencies." Conflict of jurisdiction would probably creep in. Additional, not substitute reports, would probably be required, and examination difficulties might be even greater. But this is highly speculative; until some details of prospective division of responsibility are known, it is idle to draw conclusions. It is the common view that barring a revamping of the whole of our taxing methods, it will be extremely difficult to obtain Federal control over taxation, to obtain uniformity in taxation by states, or to prevent taxation by municipalities. This is one of the most serious menaces confronting the institution of insurance to-day.

Present Status

Some features of the present status may be stated briefly. Others are very difficult to analyze. It is quite clear that insurance companies are not now seeking Federal supervision. No prospect is seen of reversing Paul *vs.* Virginia; there is no hope of obtaining freedom from state restrictions; there is a fear that Federal rules might be worse.

State insurance officials are representatives of their states first and philosophers second. Occasionally one of them favors Federal control or fears it as a consequence of faults in present methods. But, as a rule, state officials advocate the continuation of the powers they exercise. Yet these state officials have frequently asked that control of the mails be invoked to help them solve their problems.

Repeatedly it has been said in recent years that state supervision is on the defensive. While insurance weathered the depression far better than did other financial institutions, there were failures and losses. These failures disclosed weaknesses in state supervision. They also disclosed that individual states are not equipped to handle liquidation of national businesses either economically or expeditiously. Regarding such liquidations Superintendent Pink wrote in his 1936 Report: "The result has been disastrous. Delinquent companies have been subject to different handling and different theories in dozens of different states. Confusion has been widespread and untold amounts have been wasted."

Here again the tendency is to fly to a remedy that we know not of, not with a definite prospect of perfection that we can visualize in it, but rather because it is a short-cut to uniformity, and cures ills of which we are all too conscious. Yet better judgment counsels of the danger of going from the frying pan into the fire; and suggests, not abandonment of efforts at reform, but caution in preliminary analysis before embracing a particular remedy.

Certainly we can all agree that if it were conceivable that the United States were starting to-day with its present social, economic, and industrial development, there is no reason to think that states would be laid out as they now are and that insurance, among other things, would be conducted and controlled as it now is. But in our theorizing we are too apt to ignore the historic roots of our institutions. No more serious error can be made. The fact is that we have state supervision and that the present rules and customs are the results of more than half a century of evolution—the results of that long period of conflict and cooperation, competition and combination, selfishness and altruism, enlightenment and ignorance. While certain principles have become established, we should think twice before attempting to transplant them bodily into a Federal system. That a Federal system might appear full blown overnight and function satisfactorily is beyond the realm of reasonable expectation.

We cannot ignore our background; the part of wisdom is to build the new onto the old. This may be poor policy in building skyscrapers, but if the experiences of history teach anything, it is that evolution is better than revolution and that social, economic, and industrial institutions had better change by adding to the old rather than by destroying it and starting anew. When we look at Europe to-day, Great Britain stands out clearly as the most stable among the larger nations. And among the most characteristic features of British institutions—possibly even to a fault—is the building of the new onto the old.

Comity Between States

Comity is somewhat difficult to define but is nonetheless real. In insurance matters it seems to be as important to-day as it was half a century ago. Whether a state be highly developed industrially or predominantly agricultural, whether it be large or small, populous or sparsely peopled, and whether or not it be the domicile of extensive insurance interests, the insurance commissioner is a self-respecting adult ready to defend the dignity of his office and of his state. He may know nothing about the valuation of the liabilities of a company, but he accepts the statements of other commissioners regarding their companies and feels that they in turn should accept his statements regarding his own companies. He may have little conception of the meaning of many of the items in an annual statement, but he accepts the audit made by other states of the records of their companies operating in his state, and these other states should, in comity, accept his audit of his home companies. He accepts the reports of examination of other commissioners regarding their companies operating in his state and they should rely on his inspection of the companies of his state.

This is called comity between states. It has a deep seated basis in the mutual respect that individuals should show to one another. So long as it remains on this plane it is admirable although it can easily go too far. But fundamental weaknesses are involved. In the first place, comity is an essentially unstable concept because it so readily degenerates into retaliation. One rule says, I will bring up my own children in the way they should go and shall have faith in the training of yours. The other says, if you spank my children, I will spank yours.

In the second place, and far more important from the standpoint of the insuring public, it is unsound to assume that approval by home state officials is sufficient guarantee that a company will be acceptable to another state. Some states have given far less attention to the safeguarding of the insurance business than have others. The very volume of insurance transactions has forced some states to give a great deal of thought to these matters for half a century. In others the same attention would have been quite indefensible because of the insignificance of the volume of business. Yet comity is based on the assumption that these two states are equally competent in regulating the business for the protection of the insuring public.

This is far from a simple problem. The interplay of personalities of mature adults is involved. Self-respect, pride, training, selfishness, and fear of the unknown all have their influence. Neither magnitude of transactions nor length of experience can replace native intelligence or a sense of fair play; and selfishness and personal ambitions know no geographical limits. Furthermore, it is extremely important in a national business that, regardless of the strength of an insurance corporation and the idealism of its leading officials, that corporation will be judged in a particular locality by its representative there. Neither the high character of the company nor the high standing of the insurance laws or supervision in the home state is a guarantee of either the ideals or the fitness of this representative. In case of difficulty, whether the home state, the home office, or the local representative is in the wrong is of little interest to the parties affected. All of these considerations have their bearing and give point to the contention that comity should be practiced.

But the dominant motivating force that makes for comity is fear of retaliation. State A may have a dozen strong companies doing a large business in State B, while State B has one company doing a comparatively small business in State A. But if State A tries to bring the company of State B to a high standard of performance, the companies of State A may find themselves in difficulty in State B. Their policy forms may be found unsatisfactory; some accounting detail of the annual statement may need modification; agents may be unable to qualify or their authority may be delayed; a troublesome tax law may be uncovered; or the commissioner of State B may find it necessary to examine each of the companies from State A at great expense and inconvenience to them. And the alternative may be to allow the company of State B to operate in State A as it sees fit.

This serious problem seems inseparable from our method of supervision by states. It has persisted through the years. Probably no year goes by without the threat of retaliation on the part of some insurance commissioner who is peeved because another commissioner has failed to respect the principle of comity to the extent that the first thinks he should. The tendency is clearly to lower the standards of supervision of all states to that of the lowest. Fortunately there are counteracting forces, some of which have already been mentioned. Probably most hopeful are efforts at cooperation and uniformity and to this end the various activities of the N. A. I. C. are invaluable, resulting as they do in acquainting the state commissioners with each other and in encouraging them to counsel with each other regarding common problems.

Limitations on Use of Mails

Developments of recent years have brought into prominence a suggestion for Federal regulation that was not contemplated in the earlier discussions of the alternatives of state or Federal supervision—the possibility of limiting the use of the mails. This has resulted at least in part from improvement in methods of communication and the consequent facility in solicitation other than by personal contact. Improvements in printing, devices for cheap duplication and addressing of letters, mechanical methods of mailing, increased advertising in magazines and newspapers, the freer use of the telephone and telegraph, improvements in postal service, and finally the radio—all these have contributed to the increased volume of solicitation otherwise than by agents. They are means by which a corporation can reach prospects in any part of the country and are unrelated to requirements for doing business in the various states. They have been used to an increasing extent in recent years by "fly-by-night" outfits that all respectable individuals and organizations desire to see exterminated. But the difficulty is that the same means of communication are being used very extensively by corporations, fraternal benefit and mutual aid societies, and many other organizations of a wide variety with motives quite as admirable as those of any corporations that do business by means of personal representatives.

It is also recognized that regardless of the means of original contact with prospects, the bulk of the intercourse in the operation of an insurance business, other than industrial, is by use of the mails. We already have laws devised to close the mails to socially undesirable commodities, such as lottery tickets and obscene literature, so that we think immediately of using this weapon against the activities of organizations that seem to menace the general welfare. But as yet we have been baffled as to procedure because every suggestion that has been made has been considered oppressive to large numbers of eminently respectable organizations.

At least three devices have been suggested in bills proposed for congressional legislation in recent years. These involve closing the mails except to those:

(a) with Federal license;
(b) with state license where mail is addressed; or
(c) with agents appointed for service of process in states where mail is addressed.

None of these bills has as yet been enacted but their introduction is significant. Some of them have been suggested by state insurance officials, and others have been backed by them—not with any thought of decreasing state authority, but rather with the conviction that Federal assistance is needed by the state officials in curbing the activities of unscrupulous and unsound organizations. The most extensive discussion of these questions that has appeared in print is the record of hearing before a Subcommittee of the Committee on the Post Office and Post Roads of the House of Representatives with reference to a bill, H.R. 6452 submitted to the Seventy-fourth Congress, first session. The hearings were held in March and April, 1935.

This record will probably convince a reader that the bill in question was formulated without due regard to, and probably with only sporadic knowledge of, the ramifications of non-agency insurance activities, both competitive and otherwise. Congress is especially sensitive to the welfare of uncommercialized mutual undertakings and it seems probable that no hasty action will be taken to the detriment of substantial legitimate interests. It would be unfortunate if legislation should place insurance ventures in a strait-jacket that would make impossible the institution of new methods or new combinations of old methods of providing desirable coverage.

SUMMARY

In the beginning supervision of insurance appeared in states; most companies had only local ambitions when incorporated; need for a minimum of supervision was recognized early; the Federal Government was not and should not have been interested, so the states stepped in.

As the business grew and as companies expanded, national interest appeared; in considering the right of a state to enforce special requirements on companies of other states, the Supreme Court declared in 1868 that insurance is not commerce; this decision has been reiterated in later cases. Constitutional lawyers have for many years questioned the decision and the arguments that supported it, but the decision stands.

As the complications of state supervision grew, so also did the propaganda for Federal supervision. At the time of the Armstrong investigation, sentiment seems to have been distinctly favorable to this change, but all efforts at legislation to institute Federal supervision were rejected by the judiciary committees of Congress so that no Federal act with this objective has ever appeared.

The rapid growth of the insurance business since the year 1910 or thereabouts has brought with it increasing cooperation between states and between company and state officials; this has resulted in increased uniformity in state laws and practices, and hence in less irritation because of conflicts in supervisory rules. At the same time this development has necessarily meant the expansion of the work of state insurance departments, has shown insurance to be a lucrative and stable source of taxes for the different states, and has developed a sense of vested interests on the part of state officials in this supervision. The result of all this to-day is that there is no well defined interest in Federal supervision; there is no hope of avoiding state supervision; there is no hope of limiting the freedom of each state to tax the business as it sees fit. Briefly, we have lost the early conviction that Federal control was a panacea for all ills and along with it the hope that state taxes and the details of state supervision might be eliminated. And so, insurancewise, the conviction has grown, not only that we must, but that it is probably best that we should, build the future on the structures of the past.

In recent years the Federal Government has been asked to supplement state supervision by closing the mails to undesirable concerns, but as yet without success. It is not now clear how this can be accomplished within constitutional limitations and without the danger of doing more harm than good.

At present we seem reconciled to state supervision despite the fact that fundamental difficulties inhere in comity between states and the related dangers of retaliation. During the past half century, we have become accustomed to these conditions and have learned how to minimize their effects. Our present hope rests largely on the advances that have been and are being made in uniformity in laws and procedures and in cooperation between states.

ABSTRACT OF THE DISCUSSION OF PAPERS READ AT THE PREVIOUS MEETING

AVIATION INSURANCE

BARBARA H. WOODWARD

VOLUME XXV, PAGE 81

WRITTEN DISCUSSION

MR. JOHN A. MILLS:

In the introduction to her paper, Miss Woodward says, "... this paper will not be concerned with possible rate making formulas, but will confine itself to a brief review of the aviation rate making picture as it exists today, with particular emphasis on the main casualty coverages." Miss Woodward's paper is a very clear and concise presentation of this phase of aviation insurance.

Statistics have not played a very important role in aviation insurance rate making in the past, but with continued growth and stabilization in the industry, they can be expected to take on the same degree of importance they have attained in the rate making processes under other major casualty lines.

Inadequacy of exposure has been as serious a handicap in promulgating aviation insurance rates on a statistical basis as have the rapidly changing conditions within the industry. During 1938 the nation had 29,000,000 licensed automobiles but only 10,000 licensed airplanes. Due to the publicity the industry has received, a good many people are under the impression that its growth has been more rapid than actually has been the case. The following exhibit shows the increase in the number of airplanes and in the miles flown since 1930 as reported by the Civil Aeronautics Authority.

	Number of Licensed Planes Used by		Passenger Miles Scheduled Operations (000 omitted)	Plane Miles Non-Scheduled Operations (000 omitted)
	Scheduled Operators	Non-Scheduled Operators		
1930	600	6,754	84,016	108,270
1931	590	6,963	106,442	94,343
1932	564	6,766	127,039	78,179
1933	504	6,392	173,492	71,223
1934	518	5,821	187,859	75,602
1935	459	6,912	313,906	84,756
1936	380	7,044	435,740	93,320
1937	386	8,766	476,603	103,000
1938	345	9,600	555,000	120,000

Although statistics so far developed have been limited, they have nevertheless served a useful purpose in arriving at a base rate and also in judging the approximate proportion of the losses attributable to each of the major hazards connected with flying.

Figures compiled by the United States Bureau of Air Commerce for the period 1933 through 1937 show that airplane accidents are due to the following causes in the following proportion:

Cause	Scheduled Operations	Non-Scheduled Operations
Personnel	28%	53%
Engine and Plane	38	27
Weather	17	7
Airport and Terrain	10	9
Others	5	3
Undetermined and doubtful	2	1
All causes	100%	100%

The Bureau of Air Commerce assigned accidents that occurred during the period 1928 through 1937 to the following circumstances:

Circumstances	Scheduled Flying	Non-Scheduled Flying
Collisions	12%	5%
Takeoff (Including taxying)	17	20
Landing	33	32
Forced Landing	25	20
Spin or stall	3	17
Other types	10	6
All circumstances	100%	100%

Questions asked a prospective insuror by aviation underwriters are designed to provide the underwriter with all data having an important bearing on the causes and circumstances surrounding airplane accidents. The underwriter knows the approximate part of the pure premium attributable to each of the factors on which information is required and the final rate quoted recognizes within practical limits the extent to which the individual risk can be expected to vary from the average.

A large proportion of the loss cost is under the direct control of the insurance buyer and it can be expected that experience rating on both a prospective and retrospective plan will play an increasingly important role in the aviation insurance business.

The dangers connected with flying have been the principal reason the industry has not expanded more rapidly. That is why everyone interested in its future has tried to do his part towards promoting the six major requisites for safe flying. These, according to the Aeronautical Chamber of Commerce are:

1. A machine sound aerodynamically and structurally.
2. An engine of sufficient power, operating satisfactorily.
3. A competent and conservative pilot and navigator.
4. A sufficient number of airports and emergency landing fields.
5. A nationwide system of weather forecasts.
6. A nationwide chart of air routes.

Substantial headway has been made towards making flying more safe as is evidenced by the following table on aviation death rates per 100,000,000 occupant miles covering the years 1930 through 1938.

Year	Scheduled Operations	Non-Scheduled Operations
1930	28.6	234.1
1931	23.5	212.0
1932	15.0	205.3
1933	4.6	217.6
1934	9.0	214.9
1935	4.8	154.6
1936	10.1	145.7
1937	8.4	137.1
1938	4.5	114.2

The insurance companies are contributing their share towards promoting greater safety in flying through safety engineering. They also encourage safe practices by recognizing them in the rates. The rate level for public liability, for property damage, and for passenger liability has decreased materially during the past decade.

When the system for making blind or all-instrument landings is perfected, many accidents including a considerable proportion of those arising from fog and poor visibility at airports will be eliminated. Many improvements have been realized in recent years including the improved two-way radio, a more sensitive altimeter, a manifold pressure gauge which warns the pilot when the pressure of the gas mixture rises too high, and de-icing equipment. These forward steps keep the insurance rate structure in constant need of adjustment and they promise to keep it that way for some time to come.

WATCH YOUR STATISTICS!

A PARTIAL STATISTICAL GUIDE FOR NON-ACTUARIES

G. F. MICHELBACHER

VOLUME XXV, PAGE 97

WRITTEN DISCUSSION

MR. W. W. GREENE:

There once was a smart actuarius,
Who invented a rate plan precarious;
The loss ratio grew worse,
So he died from remorse,
*Thus ending his conduct nefarious.**

Mr. Michelbacher's paper embodies a sincere and eloquent protest against the misinterpretation of statistics in the casualty business. His plea is bound to evoke the sympathy of all of us who, like him, have "attempted to prevent the improper use of statistics." After his initial comment upon the statistical ineptitude of producers, assured, insurance counsellors, underwriters, claim men, public officials, legislators, etc. he buckles down to the onerous duty of "unscrewing the inscrutable" for their benefit; and, once he gets into his stride, he does a fine job of directing the searchlight of "pitiless publicity," as it were, upon each, in turn, of several of the favorite stumbling blocks of amateur statisticians.

So far so good, but my own feeling is that the author's six rather brief rules for avoidance of the aforesaid stumbling blocks leave something to be desired. The rules themselves, with one possible exception, are, I am sure, entirely sound as far as they go: but the practical casualty man or casualty insurance buyer who has been convinced by five pages of exposition that he must at all hazards bear in mind the distinction between policy year and calendar year figures is bound, I think, to crave, on the constructive side, considerably more than the following somewhat oracular utterance which appears on page 103:

* This wholly irrelevant stanza is inserted solely to uphold the worthy custom established years ago by the author whose paper is under discussion.

> "Rule I.
>
> Always make certain whether the statistical data under consideration were compiled by the policy year or the calendar year method of accounting. Never, under any circumstances, attempt a comparison of two sets of data unless both are prepared by the same method of accounting."

Our layman by the time he reads the foregoing has become convinced that casualty statistics may easily be misinterpreted, and that he himself has been drawing hasty and false conclusions from them. Even so, insurance figures are part of his stock in trade, and he has to deal with them whether he likes to or not. He would welcome authoritative instruction as to just how he may safely and soundly utilize casualty statistics. This paper, I fear, provides affirmative instruction of this kind only to a very limited extent, for the other five rules of statistical interpretation are similarly brief. This is not exactly a fault on the part of the author (his subcaption states that the paper is only a "partial" statistical guide) but it may afflict the expectant layman with an inferiority complex which can be cured only by further treatment.

Reverting to Rule I for a moment (and this is the only part of the paper with which I would differ specifically), nobody can properly quarrel with the first sentence. The second is, I submit, too inflexible. Consider, for a moment, the reinsurance underwriter. He is deeply concerned at times with mass results, such as the loss ratio of a given company on an entire line. In forecasting, as he must, to the best of his ability, what this loss ratio will be in the immediate future he must perforce use whatever evidence he can lay his hands on. Sometimes he is presented with the experience on the latest one or two policy years as evidence of the desirability of the business. If the loss ratio on this recent policy year experience is invitingly low, he may be tempted to take a step which will cost his company a great deal of money unless before taking these figures at their face value he looks at calendar year results. If the calendar year loss ratio is higher than the loss ratio for the last policy year and rates and other underwriting conditions have apparently been fairly stationary for several years, then the situation strongly suggests that in the policy year experience the loss reserves are not adequate. If, on the other hand, calendar year figures are presented, it is by all means desirable to require a breakdown by policy years to see how the loss reserves originally set up on the more remote policy years have stood the test of time. In fact, the reinsurance underwriter's only chance of guessing right may depend upon making comparisons of policy year and calendar year figures from as many angles as possible; so that if he were to take Rule I as gospel and not make these comparisons he would eventually find himself, in a manner of speaking, abaft the octasphere: and much the same considerations apply in the determination of rate levels in the direct writing field which, indeed, are arrived at as the result of a comparison of calendar year loss ratios with policy year loss ratios, to which fact the author refers by implication on page 98.

I am inclined to believe that the improper use of statistics in our business is largely a fault of omission on the part of the actuaries. Comprehensive and trustworthy statistics are of no value whatever unless they are used properly, and is it not unreasonable to expect that they will be so used by the majority of those for whose benefit they are prepared unless the figures are presented in a form such that an intelligent person who has a fair working knowledge of our business can understand them? I am sure the author would join me in answering "Yes!"

This paper contains much useful closely-reasoned material and is admirable as literature, but in my opinion it does not, in its present form, go far enough toward the accomplishment of its avowed purpose, namely, to instruct laymen in the more correct use of statistics. It does break considerable important ground in that direction, but I am inclined to think that if the really substantial good which the author had in mind is to be achieved, much more ground has to be covered, in even greater detail, and probably in somewhat less technical language.

I would like to suggest that the Society undertake the task of preparing a statistical handbook for the use of all persons connected with the business in order that they may be fully acquainted with not only the principles and distinctions which Mr. Michelbacher has ably expounded, but also with many other practical points as to the significance and proper use of the figures which appear in the financial statements of the companies, in the schedules accompanying the statement, and in all exhibits normally compiled by carriers and bureaus in connection with classification, individual risk, and agency experience, and the determination of experience and retrospective rates. This handbook might easily run to two hundred pages. It should contain not merely explanations, but, and this is even more important, *examples* illustrating just about every way in which figures can be used in the casualty business. Mr. Michelbacher's excellent text could be worked into the proposed manual; but the manual could do a much more complete job than he had space for in his paper in the matter of taking the layman by the hand, as it were, and leading him in the paths of statistical rectitude.

Appendix

(Which should be cut out if it causes any trouble)

The following folktale is to be read slowly by or to all good little actuaries upon retiring:

The Actuary and the Grain of Truth

Once upon a time there was an Actuary who was big and strong, but so kindly by nature that he could not refuse anybody anything. He was very unhappy because his cruel stepbrothers, the underwriter and the producer, kept him bending his back all day long at heavy tasks in the field of casualty insurance, but when they met him on John Street their noses were always so high in the air that they could not even see him.

One day the Actuary found in the field of casualty insurance a grain of truth.

"Who will plant this grain of truth?" he asked.

"I won't," said the underwriter.

"I won't," said the producer.

"I will then," said the Actuary.

So he put the grain of truth in one of the many pits of illusion which dotted the field of casualty insurance, covered it with dirt which the producer had brought in from the street, fertilized it with garbage which the underwriter had thrown out the window, and watered it with his own sweat and tears. After a while the grain of truth began to grow and grow, and soon there rose a tall, strong plant, and on its top was a big golden clump of ripe statistics.

"Who will pick off these statistics?" asked the Actuary.

"I won't," said the underwriter.

"I won't," said the producer.

"I will then," said the Actuary.

So he picked off the statistics with his keen punch machine.

"Who will thresh out these statistics?" asked the Actuary.

"I won't," said the underwriter.

"I won't," said the producer.

"I will then," said the Actuary.

So he threshed out the statistics on his fast tabulator.

"Who will interpret these statistics and get all the credit for being a Deep Student of the Business?" asked the Actuary.

"I will," said the underwriter.

"I will," said the producer.

"Like Hell you will," said the Great Big Executive, in his great big, gruff voice. And the Great Big Executive interpreted the statistics and got all the credit for being a Deep Student of the Business, so there was not a crumb of credit left for the underwriter or the producer. As for the Actuary, he was never heard of after that and if you ask any of the wise men along John Street about him they will merely shake their heads and say they can't remember him at all.

But in a nearby village where the Actuary was wont to go at night to nurse his tired back and aching pride against another day, there are those who say the reason for this is that the Great Big Executive was really just the Actuary, who had had his hair cut, bought some new clothes, and had his glandular imbalance corrected.

MR. A. H. MOWBRAY:

Mr. Michelbacher's effort to pass on to non-actuaries some enlightenment to help them avoid pitfalls in the use of statistics reminds me of an occasion many years ago when I assayed the same role as an expert witness in a liability suit. The attorney for the plaintiff, suing for damages because of the death of a 14 year old girl had introduced a mortality table and shown an expectation of life in excess of 46 years, presumably to impress the jury with the immensity of the loss. When the defense called me, he strenuously objected to the introduction of an expert in such matters. The law recognized the table and it spoke for itself. It so happened that the judge was less hidebound than some. He retorted that the attorney had himself introduced the table, that mortality tables were technical things and there were doubtless right and wrong ways to use them. He thought the court and jury were entitled to such guidance as might be given by a qualified expert. Blocked at this turn, the attorney on cross-examination tried to belittle the significance of computations of probabilities in a correct use of the table.

I am afraid some of those whose misconstruction of statistical evidence Mr. Michelbacher tries to correct are like the attorney in this case, not interested in bringing out the truth but in establishing a case. In respect to these I am afraid our genial colleague's effort is largely Love's Labor Lost, except insofar as the companies and others are led to reconsider methods of compiling and publishing data and set them up in a form less susceptible to misuse and misunderstanding.

Michelbacher's first point for consideration is the difference between policy year and calendar year accounting and the confusion arising from the use at times in the same problem of data, part of which have been compiled by the one method and part by the other. There is nothing sacrosanct about a policy year as a base of experience. It got started that way when the Massachusetts Insurance Department called for Schedule Z as an adjunct to the Annual statement as of December 31, 1912 relating to policies expiring in that year. Formerly mortality experience was always taken out in respect to a closed period and experience tables were more or less out of date by the time they were issued. The exigencies of the annuity business led the British Institute of Actuaries and the Faculty of Actuaries in Scotland about fifteen years ago to set up a scheme for a continuous investigation into the mortality of annuitants along the lines of census methods. In the evolution of compensation rate-making, the place of Schedule Z has become less important. Perhaps we have the ingenuity in our own ranks to find a new basis and method of preparing our data that may diminish the confusion arising from the double method. Until we do, we must emphasize to all we find dealing with our statistics the first Rule laid down in this paper. Indeed, even if we succeed in simplifying and making more uniform the statistics we turn out we must always insist on observance of the spirit of this rule that comparisons of data compiled by different methods are always dangerous and usually misleading.

Probably the greatest cause of misunderstanding of loss ratios is the practice of most states of requiring in that part of the annual statement dealing with business within the state a statement of premiums written (or received) and losses paid, unless it is the quasi-cash form of the annual statement. The figures for an incorrect estimate of loss ratio are ready to hand; those for a correct estimate must be sought and sometimes are not available at all. As a company reaches a stabilized maturity a losses paid to premiums written loss ratio tends to approximate a true incurred-earned loss ratio and some who should know better are tempted to make the assumption that the approximation in a given case is close enough. It may be, but the error of approximation is unknown and it sets a precedent for those who do not know better. Perhaps the time is ripe to seek reform in statements which will make the calculation of correct loss ratios easy and of incorrect ones hard.

Rule III which Michelbacher gives relative to the interpretation of experience is sound in principle but may well be difficult to apply in individual cases. How do we know what losses "may reasonably be expected to occur?" The first example cited in this section raises the question whether anyone has made in any industrial classification a study of the correlation between large and small losses. May there not be some point in the ratio of actual small losses to expected that may give high credibility to the entire absence of large losses as a significant departure from class indication?

Rule IV is sound but why make such comparisons at all. The problem of determining the accuracy of loss reserves is probably the most difficult in casualty insurance. Yet it is of first importance because error here also vitiates a correctly calculated loss ratio. I agree that a method exists by which the loss reserves of a carrier may be *tested* but the test at best requires interpretation. Rule V gives the method determining whether previous estimates were reasonable but we must still consider whether the same bases are still used and, if not, whether changes which have been made tend to make reserves more or less accurate.

In my experience I have never encountered difficulty with a carrier's unearned premium reserve as a matter of computation. The question of the accuracy or even adequacy of the collected premiums from which the reserve is derived is, of course, the really important question when the unearned premium reserve is studied as a measure of the sufficiency of the carrier's provision for its future requirements under unexpired policies. This is a "horse of another color," but most of those who go hunting for inaccuracies in computation of unearned premiums rarely glimpse this larger question.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. G. F. MICHELBACHER:

Some of my friends have said of me that I would rather argue than eat. Certain it is that in my day I have participated in many a wordy battle. But I must be slowing down with approaching old age because I have derived real pleasure from the knowledge that my good friends Greene and Mowbray agree in the main with the fundamental purpose of my paper, which was to make the world safer for casualty insurance statistics. I never intended that this should be the last word on the subject. Rather it was my hope that it might be the first or introductory word and that others would be prompted to carry the good work forward.

If the preparation of a statistical handbook (as suggested by Greene) seems feasible, I am enthusiastically in favor of the project. But before that work is undertaken, perhaps it would be well to consider some of the points raised by Mowbray. Are our methods of compiling and publishing data susceptible to misuse and misunderstanding? Is the policy year accounting procedure indispensable? Must we continue indefinitely to include in our annual statements written premium and paid loss figures for individual states? Is there a test which can be applied to loss reserves for the latest calendar year to establish their adequacy? What about Schedule P: is there room for improvement here? Is the adequacy of the unearned premium reserve dependent upon the adequacy of the collected premiums from which the reserve is derived? These and a host of other problems might well be investigated and a new, improved statistical system devised before we set out to educate the participants in our business in the proper use of statistical information.

Here is a real job for casualty actuaries and I hope the members of the Society will grasp the opportunity to promote a practical project of interest and value to our business.

As to Greene's introductory poem and bedtime story for infant actuaries, I heartily approve of both. I have been accused of introducing levity into some of my contributions to the *Proceedings*. "It isn't dignified," say some of my critics. That may be true; but can anyone tell me why an actuarial treatise should be as dry as dust and absolutely devoid of humor? My belief is that the casualty actuary will grow and prosper and win respect in exactly the degree to which he can demonstrate to the world that he is a normal human being with a real sense of humor (even if the joke may be on him, as seems to be true in this instance). I, for one, will always welcome a little humor to brighten the pages of our *Proceedings*. We cannot have too much of it!

TABLES ADAPTED FOR MACHINE COMPUTATION

FRANCIS S. PERRYMAN

VOLUME XXV, PAGE 121

WRITTEN DISCUSSION

MR. RALPH M. MARSHALL:

The simplicity and ease of operation of the tables of logarithms presented by Mr. Perryman at the November meeting are best appreciated after one has attempted to calculate annuity values with the tables and calculating machines to be found in the average office.

In our own office we have frequent occasion to calculate present values of annuities in connection with estimating the effect of changes in the benefit provisions of a compensation act, or, as was recently the case in Arkansas, in setting up the initial compensation rates under a newly enacted compensation law. It is customary to assume an interest rate of 3½% for these calculations and simple annuities certain are used for dismemberment schedule cases. These values have been set up in a table of values of "one per week" for various periods from one week to 832 weeks. The valuation of permanent total disability benefits and fatal benefits to children involves the use of life contingencies and we have special tables which have been calculated giving the values of temporary annuities for various periods for the ages encountered in the American Accident Table. These tables are based upon mortality rates from the U. S. Life Tables of 1910 for both sexes with 3½% interest converted continuously. Finally for evaluating the benefits payable to widows, we have similar tables based upon mortality and remarriage rates from the Danish Female Survivorship and Dutch Remarriage Tables respectively with interest at 3½% converted continuously. These of course are special tables made up for our purposes and would probably not be suitable for calculating monetary reserves on individual cases, unless the rate of interest desired happened to be 3½%. In our calculations the results usually take the form of ratios of one valuation to another and therefore a slight difference in the interest rate assumed for both numerator and denominator would not be as important as where monetary reserves are desired.

If called upon to calculate annuities at some interest rate other than 3½% or with other than weekly conversion periods, we would be in no better position than the average office. I find we have a table giving logarithms of numbers from 1 to 9999 to five decimal places, and another table giving logarithms of the same numbers to six decimal places. If we are going to interpolate for the logarithm of a number of five significant figures it seems desirable to have the logarithms given to at least six decimal places because a difference of one in the fifth significant place of the number is equivalent to a difference of .000043 (43 in the 5th and 6th decimal) in the logarithm at the top of the table, i.e., from 10,000 to 10,001; but at the bottom of the table, from 99,998 to 99,999 the difference in the logarithm is .000004 (4 in the sixth decimal) and therefore interpolation from the five place logarithms would not give accurate results. Likewise in determining the antilogarithms from the six place table, anything beyond the fifth significant place would be in doubt.

I also found a condensed logarithm table that was rather interesting. This table was set up to give the logarithms to 15 decimal places of numbers from 1 to 9, of numbers from 1.1 to 1.9, of numbers from 1.01 to 1.09, from 1.001 to 1.009, etc. down to 1.000000001 to 1.000000009. This table was attributed to Hoüel, Recueil de Formules et de Tables numériques, and was intended to be used by a factorization method similar to that employed by Mr. Perryman. However it is necessary to have as many factors as there are significant figures in the number whose logarithm is desired and therefore the process of determining a logarithm by use of this condensed table becomes very cumbersome and laborious. Mr. Perryman seems to have struck a very happy medium between the size of the logarithm table and the amount of machine calculation required and his tables of logarithms are so much superior to the condensed table by Hoüel that I have not bothered to reproduce it. In the text accompanying this condensed table the figure of .434294 quoted by Mr. Perryman in his Table VI is given more completely as .4342944819 and is the value of $\log_{10} e$. The error introduced by using $M.x$ in place of $\log_{10}(1+x)$ is less than $\frac{M \cdot x^2}{2}$.

There are one or two typographical errors which become apparent in reading Mr. Perryman's paper. The log of 1.23456789 on page 124 should be given as .0915149771700. Also in example (8) illustrating the construction of a table giving the present value of a weekly annuity, the exponent of the second term in the expression near the bottom of page 142 should be corrected so the expression will read,

$$\frac{\mathbf{r}}{\dot{j}_{(r)}} - \frac{\mathbf{r}\ v^{\frac{q}{\mathbf{r}}}}{\dot{j}_{(r)}} \times V^{\frac{30p}{\mathbf{r}}}$$

and in the next line also to $\frac{\mathbf{r} \cdot v^{\frac{q}{\mathbf{r}}}}{\dot{j}_{(r)}} = Aq$

The values of logarithms of $(1+i)$ and values of $J_{(r)}$ in Tables I and II should also be very valuable, especially the values of $J_{(r)}$ for $r = 52$, $r = 52.1775$, in compensation work where compensation is usually paid on a weekly basis. Mr. Perryman has, perhaps, confronted us with an embarrassment of choice between values of $J_{(r)}$ for $r = 52$ and $r = 52.1775$. We are confronted with a similar choice between 52 and 52.1775 in determining the period for an annuity where interest is assumed to be convertible continuously. Neither one is exactly correct for the limited periods encountered in compensation work, but there is very little practical difference as Mr. Perryman illustrates in his examples 5 and

5a. 52.1775 is the more nearly correct and there is, of course, an advantage in using the terminating decimal.

In addition to the utility of the tables themselves, the annuity formulas, interpolation formulas, and illustrative examples which Mr. Perryman has been kind enough to include with his tables are invaluable as a "memory freshener" to anyone who seldom has occasion to make calculations of this nature. I am sure that the Society is indebted to Mr. Perryman for his paper and that it will prove a valuable contribution to the annals of the Society.

MR. ROBERT J. MYERS:

Mr. Perryman's paper presents a very interesting mathematical demonstration of the use of calculating machines and abridged tables in determining solutions to ten or more significant figures. While this method is quite elegant from the theoretical viewpoint, I have some question as to its practical value. Too often the layman imputes that a failure of many actuaries lies in being charmed by the beauty of their own figures. This hypnosis tends to lead the actuary into using as many significant figures as he can possibly lay his hands on, despite the fact that the original data was possibly statistically reliable to only four or five figures at the most. A particularly vivid illustration of this practice is present in the recently published 1937 Standard Annuity Table. Here, following the well-established actuarial traditions in the construction of life tables, the commutation functions are carried out to eight significant figures (9 decimal places) for age 109, whereas for all ages under 88 only 4 decimal places are used. I do not know of any instance where statutory or other legal requirements would require more accuracy than could be obtained from the usual published tables which give accuracy to five or more significant figures.

In determining the values of weekly annuities on page 126, it is assumed that a year contains 52.1775 weeks on the average. As explained in a footnote, this is based on the present calendar system. However, according to the Naval Observatory, the number of weeks which are actually contained in a solar year are 52.17746, since with the present calendar there are .003 days too many in a calendar year. This would result in the present calendar being one day off in 3000 years. However, although this difference is really insignificant for all practical purposes, nevertheless if 10 figure accuracy is required, even this should be taken into account.

Next considering the examples of the use of the tables on page 139. Example 1 may be far more accurately solved by the following method:

Let $e = \pi - p = .000000266$, then the required error is $(p + e)^{19} - p^{19}$.

Next expanding by the binomial theorem, we get

$$19\, p^{18}\, e + 171\, p^{17}\, e^2 + \cdots\cdots$$
$$= e\, p^{18}\left(19 + 171\frac{e}{p} + \cdots\cdots\right).$$

Substituting the values of e and p we get

$$.000000266 \times 3.14159^{18}\ (19 + .000014)$$

since all terms of the series beyond the second are negligible. Evaluating this with ordinary seven place logarithms, we get a value for the required error of 4.491. This is much closer to the true value of 4.504 than was the value of 4.457 obtained by Mr. Perryman.

I also solved several of the other examples by the use of seven place logarithms and in every instance obtained results correct to the nearest cent.

In the examples, using the slightly incorrect value of 52.1775 weeks to the year, the equivalent number of years for various periods of weeks are determined to 9 decimal places. Thus, the unit of time used is .000000001 years. The significance of the insignificance of this figure may be better realized when we translate it into seconds. Roughly, it amounts to .03 seconds which is the length of time that it takes light to travel one mile, or that it takes a fast runner to travel one foot. In valuing an annuity certain to such accuracy, a delay in the issuance of the benefit check by as much as one second (as might be due to a clerk sneezing at an inopportune moment) would result in an appreciable difference in the annuity value out in the ninth place. If the clerk were female and took time to powder her nose instead of promptly depositing the check in the mailbox thus resulting in missing the last mail train, the effect would be almost catastrophic.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. FRANCIS S. PERRYMAN:

I am quite gratified with the discussions of my paper by Messrs. Marshall and Myers. Mr. Marshall gave my paper the kind of reception I had hoped for. He appreciated the purposes for which the paper was intended, and, accordingly, his discussion does not call for any comment other than "Thank you." Mr. Myers' discussion, on the other hand, was what I had rather feared. I had anticipated that my paper might be criticized on the grounds of the apparent attempt to obtain a verisimilitude of exactitude because of the extension of the tables to so many significant figures. However, I would ask Mr. Myers to read, again, my statement of the purpose of the tables. It wasn't to save Mr. Myers or some other mathematically competent person the trouble of evaluating a few occasional series (although I believe that Mr. Myers will find it quicker to use the tables now that they have been prepared rather than to make the said evaluations). The purposes of the paper are to enable persons actuarially trained (but not, therefore, necessarily practicing mathematicians) to deal rapidly with questions involving logarithms and interest certain. I thoroughly agree with Mr. Myers regarding the superfluity of decimal places in many standard life tables and commutation columns but I submit that there are times when a certain amount of accuracy is necessary along the lines for which my tables were designed. If, for example, a State Compensation Law calls for a certain benefit to be valued as an annuity certain of so much a week for so many weeks, at a certain annual rate of compound interest, it is easy enough to estimate the value within a dollar or so but if we have to discharge by a lump sum payment the obligation to pay the benefit, then we must have the value "exactly," i.e., to dollars and cents. I was afraid some mathematically inclined person would cast his eyes on my example "I," for it is, of course, easier to solve it the way Mr. Myers gives but, again, my beforementioned not too mathematically trained person would probably do it the way I gave. I am on firmer ground in discussing Mr. Myers' strictures on my use of 52.1775 weeks to a year. I will grant that there are not exactly that number of weeks in a solar year but the point is that we don't make our civil calculations according to solar years—we use civil years and thus are spared the necessity of consulting the Nautical Almanac to obtain the data for commuting an annuity. Of course, it may be that certain Social Security actuarial calculations are made in Washington from data supplied by the Naval Observatory. Mr. Myers should know more about this than I. He will find, however, that my paper actually gives the proper instructions for adopting the tables to any given number of weeks in a year. I am sorry to confess, however, I have not yet found a proper formula for allowing for the time lost when Mr. Myers' female clerk finds it necessary to powder her nose.

I was interested to notice that in Bulletin No. 45, dated March 31, 1939, of the Permanent Committee for International Congresses of Actuaries, received yesterday, there is a notice of some tables similar to mine. These have been published by a Swiss, M. Frédéric Deprez, and are called "Tables pour le calcul à la machine des logarithmes à 13 decimales." These give logarithms and anti-logarithms to 12 or 13 places. The tables are presented on much the same lines as mine but are, of necessity, more extensive.

PROBLEMS IN RELATION TO CONTRACTUAL LIABILITY INSURANCE

JOHN W. AINLEY

VOLUME XXV, PART I, PAGE 151

WRITTEN DISCUSSION

MR. J. L. BARTER:

To my knowledge, Mr. Ainley's paper is the first to be submitted to this Society on the subject of Contractual Liability Insurance. This is not surprising as it is one of the smallest lines of Public Liability Insurance. The annual premium volume for both Contractual Public Bodily Injury and Property Damage is probably below one million dollars. Even so, Mr. Ainley's paper was quite timely as this is a line of liability which recently has been causing underwriters considerable concern.

Contractual or "hold harmless" agreements are frequently vicious in scope. Mr. Ainley points out that it is quite possible in such circumstances that after an indemnitor has been made to realize the gravity of the obligation, which he has assumed, he can prevail upon the principal to agree to revised terms which are within reason and justification. The insurance fraternity should endeavor to encourage the standardization of "hold harmless" clauses as far as possible, for until such time as real headway can be made in this direction, the premiums required for Contractual Liability necessarily will be greater and out of proportion to the premiums charged for corresponding Direct Liability. It is pointed out that the premium at least should be sufficient to offset the cost of investigation (which cost is usually somewhat greater than for a Direct Liability risk) and the issuance of the required protection. The Direct Liability coverage may be issued according to the terms, limitations and exclusions of established policies, whereas coverage for the "hold harmless" clauses is not written in accordance with prescribed procedure, terms, and limitations, but is a specific coverage written for the specific contract and, therefore, calls for extra underwriting expense and a little larger premium. The underwriter further realizes that the position of the insurance company may be impaired because of the possible delay in the reporting of claims.

In his closing paragraph, Mr. Ainley mentions that Contractual Liability involves many and varied possibilities and that it was not his purpose to discuss all the ramifications of the subject in his paper. I hope that Mr. Ainley, or others, will pursue the subject further. May I suggest several courses to follow.

One subject that could be discussed would be the underwriting of such contracts and the limitations which the underwriter should make. There has been the trend of thought that such agreements are perfectly insurable provided we limit the coverage to bodily injuries and property damage; that we cover only accidents occurring during the policy period; that we exclude damage to property in the care, custody and control of the assured; and that the coverage is limited to claims arising by reason of the work being done by contractors. In general, underwriters have felt that they would be willing to cover the liability even when it arises through the negligence of the owner, provided the owner's operations are such that they would be willing to insure them as direct coverage.

Another line of discussion would be as to whether exclusions should be made in these contracts. There seems to be some confusion as to whether all regular exclusions in the Liability Manual apply to Contractual Liability Insurance. There are times that if all the exclusions appearing in the Direct Policy Form are carried over into the Contractual Liability Coverage, the assured will not be furnished any real coverage for his contract. I am inclined to believe that all exclusions should be eliminated with the exception of property of the assured, or property in the care, custody, and control of the assured.

A third possible approach to the discussion might very well be as to the possibility of establishing some standard forms of contracts. This has been done in the case of railroads with some degree of success and it might be well to explore the possibilities of similar action in connection with construction contracts, lease agreements, and purchase or sales orders. One great difficulty with the present system is that many of the contracts, in so far as the "hold harmless" clauses are concerned, are so vague and indefinite that there is difficulty in determining who is liable and when liable.

I hope that Mr. Ainley's paper is the forerunner of other papers on Contractual Liability for this is a subject worthy of further consideration and I believe there are members of this Society who can make worthwhile contributions.

MR. MILTON ACKER:

In Mr. Ainley's paper on Contractual Liability insurance there is presented a thorough, comprehensive dissertation on the more important types of "hold harmless" or indemnification clauses found in practice and the general rating procedure used for determination of premiums for insurance coverage for such clauses. It is a commendable contribution to the lamentably inadequate material available for a form of liability insurance which, while producing a comparatively small premium volume, has an abundance of problems in the rate, legal and underwriting fields.

"Hold harmless" agreements in contracts, from the insurance company view, are seldom defensible in that there are forms of insurance available whereby all parties to a contract may be protected substantially for bodily injury and damage to property caused by accident and due to their own, or each other's negligent acts. As between the contracting parties, however, assumption of responsibility for the negligent acts of another may be justified. For example, where the results to be derived from the operations accrue to the sole benefit of the indemnitor, or where the operations which are the subject of the agreement are under the sole and complete control of the indemnitor, imposition of the liability of the indemnitee on the indemnitor may well be in order. In these cases we may assume a rational approach in the preparation of a contract where the liability of one is saddled upon another.

The complaint registered against "hold harmless" agreements is not directed against the foregoing types of agreements nor the types whereby the equivalent of Protective Liability insurance is provided by insuring such agreements, but rather against that type of agreement which foists upon the indemnitor the liability of the indemnitee for the latter's negligence and where the indemnitee may be engaged in operations of his own simultaneously with the indemnitor, and against the "hold harmless" agreement through which it is attempted to pass along a definite responsibility which by all judicious deduction belongs to the indemnitee only. It is against these types of agreements that criticism is leveled. Perhaps, in the not-too-distant future, contracting parties may be induced either to take voluntary action to eliminate vicious provisions in "hold harmless" agreements, or such action may be made necessary by legislative enactment.

It is interesting to note in this connection that effective June 5, 1937 the legislature of the State of New York passed the following law (now Section 234 of the Real Property Law):

> "Agreements exempting lessors from liability for negligence void and unenforcible. Every covenant, agreement or understanding in or in connection with or collateral to any lease of real property exempting the lessor from liability for damages for injuries to person or property caused by or resulting from the negligence of the lessor, his agents, servants or employees in the operation or maintenance of the demised premises or the real property containing the demised premises shall be deemed to be void as against public policy and wholly unenforcible."

The legislation was passed apparently to correct the situation which arose in the case of "Kirschenbaum *vs.* General Outdoor

Advertising Company," 258 N. Y. 489. Briefly, the facts of the case are: Defendant "General Outdoor Advertising Company" leased a roof from defendant "Landlord," agreeing in a"hold harmless" agreement to indemnify the "Landlord" from any liability arising from the use of the roof. Water collected because of a sign erected on the roof by the advertising company and as a result, goods of the plaintiff, an occupant of the building, were damaged. Plaintiff sued defendant "Landlord" who joined the "Advertising Company" as a co-defendant because of the "hold harmless" agreement mentioned. The decision in the case was made to hinge upon that part of the lease between "Landlord," defendant lessor, and plaintiff lessee, reading:

> ". . . the landlord shall not be liable . . . for injury or damage which may be sustained to person or property by the tenant or any other person caused by or resulting from steam, water, rain, etc., which may leak . . . into any part of said building . . . whether the said damage or injury shall be caused by or be due to the negligence of the landlord, the landlord's agent, servant, employee, or not. . . ."

Decision was rendered in favor of the defendant "Landlord" on the theory that the above quoted clause exempted the landlord from any liability for damage to plaintiff's goods. Because of the decision, it became unnecessary for the court to pass upon the "hold harmless" agreement existing between the co-defendants.

It is unfortunate that the legislature referred only to exemption agreements and not to "hold harmless" agreements. Considerable doubt has arisen concerning the applicability of the enactment to "hold harmless" agreements; nor are we helped any by resort to the Kirschenbaum case (since no "hold harmless" agreement was under consideration), except to conclude that "hold harmless" agreements are not affected by the law where not used to circumvent the law. However, the enactment is a step in the proper direction and it may be clarified momentarily. Other states should take notice of this constructive legislation.

The existence of "hold harmless" agreements perhaps nullifies the possibility of writing direct liability insurance protection in the names of indemnitees in satisfaction of the assumed liability provision. Direct liability forms of insurance cover the liability imposed upon an assured by law and not any liability assumed by agreement and enforcible at law. The result is that while the indemnitor may purchase liability insurance in the name of the indemnitee, nevertheless, the terms of an agreement imposing liability upon the indemnitor for the acts of the indemnitee may be invoked at any time and be enforced. Therefore, an indemnitor under a "hold harmless" agreement can secure complete protection only through the purchase of Contractual Liability insurance.

Faced, as insurance carriers are, with the necessity of providing insurance for "hold harmless" agreements, the scope of such insurance and the limitations should be defined and uniformly applied. Simply expressed, but recognizably more difficult of application, it would seem that coverage for "hold harmless" agreements should be restricted in the same manner as coverage separately provided to the indemnitee for each element of assumed liability would be restricted. If insurance carriers under their regular policies are unwilling to provide liability insurance for bodily injury or damage to property unless caused by accident and for other hazards, coverage therefor should not be provided indirectly by insuring "hold harmless" agreements which include assumed liability with respect to these hazards. It is suggested that coverage for lease agreements might be restricted by application thereto of the policy provisions and exclusions otherwise applicable to the indemnitee under a separate policy written in his name and insuring against the liability imposed upon the indemnitor. Coverage for construction agreements might be restricted by application thereto of the following exclusions generally applicable to a Protective Liability policy written in the name of the indemnitee:

1. Liability for operations of the indemnitee.
2. Liability of the indemnitee after actual operations are completed.
3. Liability for injuries to employees of the indemnitee.
4. Liability for damage to property owned, leased, rented, used by or in the care, custody or control of the indemnitee.

In the event coverage were desired for any excluded element of exposure, it could be provided for some increased premium above that authorized for the agreement subject to the exclusions. Adoption of this principle and its universal application would assist materially in standardizing rates and rating procedure, always a most desirable objective. It would probably do much also in eliminating drastic types of agreements, because insurance coverage for these agreements would then be difficult to obtain.

As mentioned by Mr. Ainley, there is some question among underwriters concerning the standardized rate used for the type of railroad agreement known as the National Industrial Traffic League agreement because the rate does not vary by reason of differences in physical characteristics and hazards of sidetracks. A substantial investigation in these several respects would not appear warranted because of the nominal premium involved,—$12.50 for Bodily Injury and the same amount for Property Damage insurance for standard limits. However, a substantial investigation need not be made since information concerning the length of sidetracks, their position and number may be developed usually from the agreement itself. Information concerning the frequency of use to which a sidetrack is put may be obtained from sources of information available when other forms of insurance are written. Furthermore, if the rate for this form of agreement should prove inadequate to cover the expense of any investigation, adjustment may be made. But, if technical underwriting consideration of this nature for a simple form of agreement should block efforts to secure moderate and standardized forms of agreement, as it well might, then perhaps we are now using the proper rating procedure.

The Manual of Liability Insurance implies that the only exclusion applicable to coverage for sidetrack agreements is damage from any cause to property owned, leased, or occupied by the assured. The exclusion, it is suggested, should apply to the indemnitee and broadened so as to include damage to property used by, or in the care, custody or control of the indemnitee or his employees. Contractual Liability insurance does not provide protection to the assured for the assured's negligent acts. Such protection is usually provided either by a Manufacturers' and Contractors' or Owners', Landlords' and Tenants' Liability policy. The protection provided is for the liability of another assumed by the assured. Any coverage in the name of the indemnitee insuring him independently and separately for an obligation imposed upon another, would extend to damage to that other's property. Hence, and on the same theory that prompts the recommendation that coverage for a "hold harmless" agreement for construction operations should exclude certain designated items involving the indemnitee, coverage for a sidetrack agreement should be co-extensive with the coverage otherwise provided the indemnitee as an assured.

Mr. Ainley, in his paper, refers several times to the uninsurability of an indemnification provision relating to damage to property owned, or in the care, custody and control of the assured (the indemnitor). An examination of the situation, however, must show that liability for damage to such property is properly the subject matter of Contractual Liability insurance for the reasons advanced.

Much can be said, and it will only be touched upon briefly here, about the rating procedure now used in the rating of "hold harmless" agreements for construction operations. Mr. Ainley has given us the details in his paper. In justifying an initial loading on the Protective Liability rates where the equivalent of Protective Liability is provided by insuring the agreement, he states that in the latter case specific coverage is written for an agreement, whereas a Protective Liability policy is subject to established policy conditions. In further explanation of this, it may be said first, that the underwriter's interpretation of the extent of the "hold harmless" agreement may be erroneous; and secondly, the indemnitee is not subject to the terms of the policy and therefore may give late notice of a claim or even settle claims himself and ask for reimbursement from the indemnitor. The first point may require some explanation. There are some of us who would say that an indemnification clause requiring the assured to assume liability of the indemnitee for any liability arising out of the operations of the assured does not require a rate in excess of the Protective Liability rate, yet on further study, an important objection to such a clause lies in the fact that injuries to employees of the indemnitee are covered and otherwise excluded under a Protective Liability policy. Of course, there are other objections to this clause. One need only revert to the exclusions proposed for construction agreements to recognize these other objections.

Question may arise concerning the practice of authorizing a percentage of the indemnitor's compensation premium to cover the waiver of subrogation feature of an agreement, as the best means of developing a charge for this exposure. Wherever possible, and this may be extremely infrequent, the premium should be developed as a function of the indemnitee's direct liability premium as the best measure of the liability being assumed. It is not always possible to use this method because the indemnitee may be engaged in more extensive operations than those for which indemnification is provided and which may be taking place on or about the location of and at the same time as the operations of the indemnitor.

Building or land leases, as mentioned by Mr. Ainley, wherein the lessee assumes the liability of the lessor in varying degrees, are rated by authorization of a percentage of the lessee's premium where insurance for the lessee is provided by an Owners', Landlords' and Tenants' Liability policy and coverage for the assumed liability is endorsed thereon. This is done on the theory that the coverage provided is comparable to that provided the lessor as an additional interest. This reasoning is fallacious, however, if only because the limits where Contractual Liability insurance is so provided apply severally; but more about limits later. The resulting quotation is not made subject to any minimum premium for the same reason that the additional interest charge is not made subject to any minimum premium.

The subject of policy limits where coverage for "hold harmless" agreements is provided by endorsement to existing policies may be disposed of by the simple statement that Contractual Liability insurance is a distinct form of coverage. It is as much an independent miscellaneous form as Owners', Landlords' and Tenants', Manufacturers' and Contractors', Elevator, Product or Teams Liability, all of which are separately rateable. The rates for such insurance apply for limits independent of any other limits provided on a policy which may extend insurance protection for other elements of exposure. The fact that coverage for "hold harmless" agreements is usually provided by endorsement on policies relating to other forms of coverage does not change the situation and policy limits should apply severally.

In conclusion, I should very much like to see some legal expression treating with this side of the problem. Rate approvals are based on broad interpretations and interpretations of "hold harmless" provisions will vary as between underwriters. For example, some reasonable doubt may exist concerning the interpretation placed on the first quoted agreement in Mr. Ainley's paper. It will be noticed that liability is assumed "from the performance of the work contemplated by this contract or in connection therewith," which relates to the work being performed by the indemnitor and not work of the indemnitee. The contract therefore, may not require a complete assumption of liability as respects negligent acts of the indemnitee. However this may be, much of the difficulty in this connection would be eliminated if certain guides were erected based upon court adjudications within which interpretative and rate judgment could be exercised. It is very possible that a legal discussion might help to dispel the rate and underwriting problems and pave the way for standardization of rates in the absence of complete elimination of "hold harmless" agreements.

INFORMAL DISCUSSION

Premiums and Loss Reserves for Casualty and Bonding Insurance — Survey and Criticism of Present Methods and Suggestions for Improvement

MR. GRADY H. HIPP:

There is one great advantage in being called on informally—you don't have to make any apologies for lack of preparation. There is also another great advantage, that is that you can pick the particular part that you want to discuss before somebody else has thrashed it over.

It occurs to me that a good starting point would be a line of investigation suggested several days ago by the President of our United States. He asked the question, I believe, "Why is there so much idle money?" I think he asked the National Economic Commission, or Committee, or some other alphabetical commission, to find out for him. I wonder if he didn't go to the wrong place. I think probably any member of this Society could tell him, probably, in about six words or at least in not over two sentences, just what the trouble was. I'm sure *I* could, and don't you think you could, too?

That leads to the thought, which is the part that I would like briefly to discuss, namely, what is the appropriate rate of interest in discounting long-term compensation and other reserves? The present law for casualty companies, I believe, provides a 4% interest assumption in calculating long-term casualty reserves. A new code has been passed by the present Legislature; and is now before the Governor. It reduces that rate to 3½%. I think that is altogether too high a rate of interest at the present time, probably for the next five years and perhaps a much longer time. So I come back to my old favorite.

In 1935, Section 27 of the Compensation Law was amended so as to require stock and mutual companies to deposit the greater part of their death and permanent disability cases in the aggregate trust fund. It so happens that I have a sort of a fatherly or custodial interest in the aggregate trust fund. As soon as I saw that bill back in 1935—even before it was passed—I raised a feeble "voice in the wilderness" to the effect that 3½% was entirely too much to expect the aggregate trust fund or anybody else to earn on high grade securities, and I have been preaching that ever since.

It so happens that the present Legislature in New York State has passed a bill—at least both houses of the Legislature have passed a bill—reducing the rate of interest from 3½% to 3%. I believe that bill is now before the Governor and, in all probability, it will be signed. We may, therefore, expect that accidents arising on and after July 1, 1939, which result in death and permanent disability cases will have to be valued on the lower rate of interest.

I think that even 3% is too high. Of course, Section 27 applies not only to the aggregate trust fund, but also to the commutation of lump sum settlements to individuals and also to non-resident aliens. Of course, when you reduce the rate of interest you increase the amounts of lump sum settlements; and maybe that is a bad thing. On the other hand, you might argue that, after all, money doesn't earn as much to-day, so the beneficiary, if he is properly entitled to a lump sum settlement, should have a larger amount.

However, there are two sides to the question, and certainly with respect to non-resident aliens it is just too bad that we don't have some other provision of the law than we have now for giving them benefits. In any event, the point I wish to make is that 3% is still too high; I think that 2½% wouldn't be out of line, but I might compromise for 2¾%.

I do wish to leave this thought with you, that for the aggregate trust fund which was in a sound condition prior to 1935 but which now has a deficit resulting from low interest earnings on the huge amounts of deposits that have been made in the last three or four years, 3% is still too high.

Of course the carriers are not required to value their other long-term reserves on the basis prescribed in Section 27; however, many if not all of the carriers will probably find it advisable to follow the interest rate pointed out in Section 27.

MR. J. A. MILLS:

On the point that has just been mentioned, namely, the discounting of long-term claim reserves, I might mention that the leading casualty companies, stock and mutual, have realized an average return on their investments over the past fifteen years of very close to 3%. This in itself suggests that the use of a discount factor above 3% is not warranted at the present time.

The first item listed for discussion is Schedule "P", including the recently adopted Parts 5 and 5A. The adoption of Parts 5 and 5A has apparently accomplished a great deal towards promoting adequate case basis reserves on liability and compensation business, particularly in the case of the incomplete policy year. It is unfortunate that the schedule does not go as far as it might. It now traces case basis reserves whereas the real interest of the layman lies in the developments that take place on the aggregate loss and loss expense reserves that enter into the determination of a company's surplus. One company that we tested showed fractional under-development on its case basis reserves during 1938 whereas its aggregate loss and loss expense reserves showed a saving of around 50%.

At present Parts 5 and 5A leave it optional with the company as to whether it will trace developments on its case basis loss reserves inclusive or exclusive of allocated loss expense, and no provision is made for tracing the unallocated loss expense liability.

The methods now prescribed for distributing unallocated loss expense payments by policy year are the same for companies that are (a) progressing, (b) stationary, and (c) retrogressing. One comparatively simple and probably more accurate way of distributing unallocated loss expense payments of a calendar year by policy year is to determine the policy year distribution of the calendar year's indemnity, medical and allocated loss expenses incurred plus the indemnity, medical and allocated loss expenses paid and then distribute the unallocated loss expenses in this direct proportion. This basis of distribution rests on the assumption that the incurred losses will roughly represent the work done in connection with the original recording and investigation and that the paid losses will roughly represent the work incident to the subsequent payment and settlement of each case.

The next item listed for discussion is that of "Additional Reserves for Undisclosed Occupational Disease Cases." This subject has been discussed by the Actuarial Committee of the National Council but the exact basis of setting up the reserve is largely left to the discretion of the individual companies. We are following a plan patterned along the following lines:

1. We identify and accumulate the amount of all specifically rated occupational disease premiums.

2. We calculate the ratio of non-specifically rated occupational disease premiums to the aggregate compensation and occupational disease premiums in states where the compensation rates are loaded for occupational disease coverage. This ratio is determined by making use of Schedule "Z" classification data for the latest available policy year.

3. The ratios so determined are applied against the aggregate compensation and occupational disease premiums in states having such loadings.

4. Aggregate occupational disease premiums and occupational disease losses paid and outstanding are accumulated by policy year.

5. Occupational disease indemnity and medical losses incurred are subtracted from 60% of the premiums earned for each of the preceding ten policy years.

6. The balance remaining is multiplied by 100% in the case of the latest year, by 90% for the year preceding, by 80% for the second year preceding and so on down to 10% for the tenth oldest year.

7. We accumulate the balances starting with the oldest year and begin over again if the accumulated balance to the end of any policy year is negative. The accumulated balance to the date of the financial statement is the current occupational disease reserve.

A reserve determined in this manner will tend to be larger for a company writing a very large volume of occupational disease coverage than for a company that writes a comparatively small volume of this coverage.

The method also has the advantage that the reserve is built up in years when the company has the money with which to do it, and it is taken down automatically in years when the liability is liquidated and when the company needs the money.

Another question listed for discussion is "What unearned premium should be carried on retrospectively rated risks." The experience figures that I have seen up to the present time indicate that the standard premium has exceeded the net collected premium on retrospectively rated risks by approximately 20%. The method we are using provides for setting up a liability in the unearned premium reserve for all surcharge premiums collected under the retrospective rating plan and in addition the estimated 20% of the standard premium that it is expected will be returned to the assured (at the time of the "first adjustment" six months after the termination of the policy) under existing rate level and existing economic conditions.

The method described can be used either with punch card or manual methods.

1. Identify surcharge deposit premiums and surcharge return deposit premiums and consider their net balance 100% in force and 100% unearned.

2. Identify "other than surcharge" deposit and return deposit premiums and consider 20% of their net balance to be 100% in force and 100% unearned. Figure the pro rata unearned portion, if any, of the remaining 80% in accordance with the regular procedure used on risks not written under the retrospective rating plan.

3. Identify audit premiums and audit return premiums "prior to adjustment" and consider them 80% earned and 20% unearned (and in force).

4. At the time the first adjustment is made under a risk, reverse the net balances identified in accordance with 1, 2 and 3 and identify the net collected premium determined under the adjustment to show it is 100% earned.

There is one other item listed for discussion in which I am very much interested, and that is the methods used by various publications to test the adequacy of reserves including so-called "short-cut" methods. The tests we have made of the short-cut methods now in use indicate that they cannot be depended upon to picture the true status of the reserves of most casualty companies.

To illustrate, Ebaugh's Graphic Insurance Charts test all of the loss reserves of a company on the basis of its current year premium writings. This means that 100% of the reserves are being tested by means of a premium unit that ordinarily gives rise to only one-third of the outstanding losses.

The Spectator people, on the other hand, test only the prior policy year reserves and therefore leave out of the picture about one-third of the reserves, namely, those arising in the current year. I don't think that any method of testing loss reserves that doesn't test the entire loss and loss expense reserve liability can be depended upon because the tests we have made show that prior policy year reserves are not necessarily on the same level as incomplete policy year reserves.

One possible method of testing the reserves is that of making use of Schedule "P", parts 1 and 2 for complete policy years, and Schedule "P", parts 5 and 5A for incomplete policy years. Schedule "P", parts 5 and 5A do not tell the story on unallocated loss expense developments and in some cases on allocated loss expense developments. Consequently certain assumptions must be made in testing loss expense developments in order to make the test complete.

MR. H. O. VAN TUYL:

The subject that I am going to talk about is an old one but if I were to give it a new name I would be tempted to call it "The Phantom Reserve."

In this day of convention examinations we are frequently asked strange questions. We suspect that some of these queries arise from a lack of familiarity with insurance practice coupled with a desire to put the company on the spot. It is therefore quite possible that some day an examiner, say, from Missouri, will note that on Page 5 of the Annual Statement under the caption "Investigation and Adjustment of Claims" there is no provision for reporting any reserves for expenses in the case of automobile liability, liability other than automobile, or compensation. The examiner will observe that the heading of column 6 under "Losses and Claims" reads "Total net unpaid claims except liability and workmen's compensation Claims" (excluding expenses of investigation and adjustment). We tell him, however, that in the case of liability and compensation the reserve at line 16 includes these estimated expenses of investigation and adjustment. He points out, however, that the wording of that item is simply "Reserve for unpaid liability losses and workmen's compensation losses" and that nothing is said about claim expenses.

We then refer him to Schedule "P" and endeavor to convince him that this reserve provides for loss expenses as well as for losses. He points out that the only place loss expenses appear is in columns 4 and 5 of Part 1 and columns 31 and 32 of Part 2 and that these as well as the loss payments are deducted from 60 percent of liability and 65 percent of compensation earned premiums to establish the remainder. In other words it appears to him that the loss expenses are decidedly a minus quantity and serve to reduce rather than increase the reserve. Of course we then state that the 60 percent of liability premiums and 65 percent of compensation premiums is intended to cover both loss and loss expenses and that the remainder normally provides an ample reserve for future losses and loss expenses.

While perhaps not entirely convinced by our explanation thus far, our hypothetical examiner next brings up the situation where a company's estimates exceed the formula reserve. He points out that the heading of column 12 in the liability schedule reads simply, "Total estimated reserve for liability losses; case-basis," and when we tell him that the company includes a reserve in this figure for loss expenses he at once insists on being shown. The same situation holds true in connection with Schedule "P", part 2, where column 37 reads "Unpaid compensation claims December 31 of current year" and "Present value at 4% interest of estimated future payments." This language seems to indicate even more strongly that no reserve for expenses is to be included and this is borne out by the wording of line 51 which simply reads "Total reserve for unpaid compensation losses."

By this time one feels somewhat baffled, but there comes to mind the fact that Schedule "P" is nothing more or less than a method of arriving at the reserve described in Section 86 of the New York Insurance Law. Feeling that we can confound our critic by referring to the law we obtain a copy of the New York Law and refer to this famous section. Here again we meet with apparent defeat for we find the law reads as follows: "The reserve for outstanding losses under insurance against loss or damage from accident to or injuries suffered by an employee or other person and for which the insured is liable computed as follows," and nowhere in this entire section is there any reference to a reserve for the estimated expenses of investigation and adjustment of unpaid claims.

The new code as originally proposed by the New York Insurance Department remedied this particular situation by providing a reserve for these expenses separate from the reserve for losses but because of other undesirable features in the proposal this plan to establish separate reserves was abandoned. While in the latest revision there is no separation of the reserve as between losses and loss expenses, the language has been changed so that it is now clearly established that the reserves as computed for liability and compensation do cover loss expenses as well as losses.

The combining in one amount of the reserves for unpaid liability losses and loss expenses and likewise of compensation losses and loss expenses results in a lack of uniformity in the practice of the companies, both in developing the reserves and in reporting them in the annual statement and the casualty experience exhibits. Many companies include reserves for allocated claim expenses in their individual claim estimates. Some provide a separate reserve for unallocated loss expenses. Some apportion the Schedule "P" reserve as between losses and loss expenses and report a separate reserve for claim expenses in both the annual statement and the casualty experience exhibit. Since the casualty experience exhibit is intended to reflect the actual claim expenses incurred for each line the failure to modify the claim expenses paid by the increase or decrease in unpaid claim expenses does produce a certain distortion of these figures.

In order to remove the inconsistencies inherent in the present situation, various solutions have been suggested. One would be the complete elimination from Schedule "P" of all provision for claim expenses either allocated or unallocated. Another suggestion would be to eliminate the unallocated portion of the expenses from the computation of the reserve and carry a separate reserve for the unallocated. The change proposed a year or so ago by the Association of Accountants and Statisticians would have taken care of this problem by combining the reserves for allocated loss expenses with the individual reserves for unpaid claims for all lines of insurance.

My purpose in discussing this matter is not to offer any solution of this problem but merely to emphasize the inconsistency in the present situation and to suggest that the time has arrived when further study should be given in order to arrive at a uniform and consistent procedure. Until this is done companies will continue to be called upon by examiners and others to explain just how the loss expense reserves for these three important lines are computed and reported.

MR. CHARLES A. WHEELER:

There has been a great deal said about Schedule P. That schedule, ever since it was originated, has been a thorn in our flesh whenever we look at reserves. Oftentimes we get a company "on the carpet" that seems to be under-estimated, and the reason always seems to be "expenses." Well, when we ask, as the examiner "from Missouri" might well ask, how did they take care of the provision for that expense, you get much the same answer as Mr. Van Tuyl has given: "It's here somewhere"—a bit of a phantom.

We don't seem to get any experience on that. We did advocate, in our code, a provision for the segregation of expense, but a committee from this very Society was opposed to this provision because of the theory that nuisance cases were often settled in lieu of defending and loss adjustments took the place of expenses, and you couldn't tell which side of the line to put such cases. We weren't especially interested in whether a nuisance case was a loss payment or was properly classed as expense. We thought you could provide for that if you considered it as a claim and called it a loss. This practice probably wouldn't have much bearing on the rate; both factors would have gone into that rate and it would have made it a lot different from my side of the picture, which was looking for adequate reserves. I wasn't greatly interested if you cut your auto rates 33⅓%, but I would like to know what you're going to pay it with, and I'd like to know in advance. Those things you will be bothered with, probably, unless you separate them; I'd advocate separating them. I think the more definitely you segregate them the easier you can find out about it and correct it.

It is always debatable as to what and how much went in, and I have found, from my experience, that expediency has a lot to do with what goes in. If you have lots of money and income taxes are high, you can put a lot into reserves; but if you have some troubles, that's another matter, and it's pretty hard for us to look at the cold figures and try to find out if the reserve is adequate. It's not so easy when the figure gets "hot." We don't think we have got the only man who can tell the final cost of a case—that is, the difference in liability or compensation—either.

Mr. Van Tuyl well says he hasn't got an answer. We had a committee of three representative men at our hearings on our code, and they were opposed a bit to the slight increase which we suggested, in the ratios of the reserves formula from 60 to 65, 65 to 70, and the reason alleged, that made quite a hit with our legislative committee was that a calendar-year-experience would be better. There has been a very able paper handed in here saying that you should not mix the two, and that had a good deal of influence on the idea.

So, it is possible to draw all manner of conclusions, and you don't get any real "meat." I really do advocate separating expenses from the pure loss cost. If it comes down to a matter of adjustment, I don't know whether you'd pay an attorney $100 or pay the claim of $50; that is up to your good-will side of the picture; and if the adjuster pays it to the claimant it is probably a loss and if he doesn't it is probably an expense. It doesn't seem so hard to separate it.

In the final analysis, I don't think it would have any particular effect on rates. It won't serve a very useful purpose from my standpoint to look for solvency all of the time. I don't mind if there is a little bit of excessive solvency, but it won't help a lot merely to separate the unallocated loss expense and include the allocated in with the losses. Again, as one company said, when we are "overboard" the estimates include unallocated expense, but if we are "underboard" they do not, and that is the end of our critical reserves. From the standpoint of expense we have thought of that and tried to develop that on the standpoint of our examinations. Again, we were fooled, because some of the companies do provide for that expense. Often it is a flat figure—(sometimes, I think, a "flat-footed" figure). Some companies don't, however, and we don't know ourselves how to get at that average—what to apply as a loading for the reserve.

Those are the things that bother us, and when we get bothered too much we sit around and think perhaps if we can't impose an additional figure on companies, that may or may not be justified. We are really looking for an excessive reserve. The law says "adequate." Of course by "adequate" it can't very well mean "deficient." It's got to be excessive. We have got to have a little bit of earnings on those reserves, especially if our cash isn't in good shape.

Most of the companies showed up very well on their reserves in the last year or two. They did so because the ratios certainly did prove excessive on the calendar-year basis. That condition seems to be sadly upset in the last few months. I don't know whether the companies will make that showing if they persist in going along the line on which they are now proceeding, but from our standpoint, unless you get something to show us what is a proper or decent figure to put in there for both expenses for unreported and undiscovered losses and "O. D." reserves—unless you can get that —you're liable to get some sort of excessive requirement that is bound to cover it. That was the thought when the 60% was determined. We didn't think it possible to go over 50%, nevertheless they raised those figures and there have been efforts not so long ago to raise them some more. There will probably be that tendency with all supervising departments, unless your organization can show us a practical way of getting at a really true figure and including it in the reserves. I don't know whether I can add much more to the Schedule P part of the discussion.

There was a thought brought up on the reserves for premiums on "O. D." cases, advocating 100% on the actual premiums if you could determine them. Well, we find the companies are faced with actual assessments for inadequacies now, and either Illinois or Indiana recently put a call out for an advance payment for just such a reserve. That was, of course, not included in any premium at the time. We have been worrying a good deal about it ourselves, and in our own case, as has been said here, there is a bit of a deficiency on those reserves that the companies are making up on a sort of a "cash-and-carry" basis. I hope that next year the deficiency will not be so extreme, or that there will be a holiday and you will not have to make it good, but you probably will if you stay in that field. You might better answer the questions instead of getting out of the field.

I don't think that 100% of an "O. D." premium will prove to be anywhere near an adequate reserve. Your actual losses will exceed that. I don't know whether the premium on "O. D." needs to be adjusted, which is, again, a difficult thing. I am not sure how much premium you can charge, but I wouldn't want you to repeat that to my boss. He's not anxious to raise rates, but I am rather anxious to get the reserves up, and we have had a period of running over a number of years where we have had a little difficulty in doing that very thing. We have had to use these schedules—not perfect, not all figured out alike—and we have had to reckon with the attacks in the magazines, some of which were a bit ridiculous, to say the least. Perhaps it is just good times that had a very healthy effect in boosting these reserves.

MR. THOMAS F. TARBELL:

I might confess, in the beginning, that of course I probably represent the partisan viewpoint.

I have enjoyed very much listening to what those who preceded me had to say on these subjects. I noticed that, so far, some of these questions have been scrupulously avoided.

I don't think I read very carefully when I first got the notice. I just sort of read "Premiums and Reserves" and then I skipped down and didn't read the "Survey and Criticism of Present Methods and Suggestions for Improvement." I can criticise I know—perhaps I can survey a little—but I am not sure I can contribute anything practical in the line of suggestions for improvement. However, we might look at Schedule P for a moment.

During the last two years I have had considerable contact with that problem, particularly in connection with a committee which served on the new code, and for that reason we have talked it up and down and back and forth with the representatives of the New York Department.

I think perhaps I might state the difference between my position and that of Mr. Wheeler is that I believe in excessive reserves, but his definition of the word "excessive" doesn't quite agree with mine. Ideally, I think reserves for compensation insurance should be based upon the estimates of individual known cases plus an adequate reserve for incurred but not reported losses, and an adequate reserve for expenses.

Now there isn't much use of going into the arguments. Mr. Wheeler just feels that that wouldn't meet the requirements from his standpoint. He wants an excessive reserve and I am willing to stand for an excessive reserve but not on the basis of 70 and 65 percent; I feel that's too excessive.

On the matter, however, of loss expense, I think that should be treated separately. We have, for a number of years in our companies, computed the loss reserves separately, and we have eliminated that reserve from the Schedule P formula reserve in making up our statement. We thought we were doing some pioneering work, perhaps setting a good example, but apparently it didn't "click" with one division of the New York Insurance Department because they insist that we throw the loss expense reserve out of loss expense reserve and put it back into Schedule P. I think it's a subject that will stand more study and we probably haven't got the answer now.

At the present time, as I understand it in the new code, the law will be substantially the same as it is to-day except the discount on long-term claims will be 3½% instead of 4, and there is a little change which affects the reserves on those years which are not computed on the remainder basis, but that is not important.

Parts 5 and 5-A, in my opinion, have been a wholesome addition to the statement. They're not perfect. I would like to see schedules there that would test the entire reserve on the individual estimate basis and then would go further and develop the redundancy or deficiency at the end of each calendar year, say, for the past five years, and then add on to that the excess in any of the formula reserve over the estimates reserve. Of course, in that situation, too, where you use that excess, you should also put in loss expense to make a proper comparison.

While I am on that subject I might refer to some of the data published by certain insurance publications. We get the data each year made up on their particular basis, and in most cases we don't think it is of very much value and is misleading. As Mr. Mills pointed out, the Spectator's check, so to speak, or test, doesn't include the latest policy year, where the inadequacy, if any is likely to exist. At the present time I am serving on a committee which is trying to get something constructive along that line to suggest to the Spectator Company.

While on that subject (although this is a little extraneous), there is another publication which, among certain elements of the fraternity, is not considered very orthodox, that publishes certain figures, one of which, for example, shows the ratio of the total loss reserves of a company to written or earned premiums for the year. Those figures can be, and are, in many instances, very misleading, and this has been pointed out to the company, but nothing has been done about it. There are several respects in which they are misleading, but a very simple example is when they take the Travelers Indemnity Company and show that our loss reserve related to written premiums is very, very small. Well, it is, naturally, because the lines of business that we write in that company don't develop high loss reserves in the indemnity lines—burglary, machinery, plate glass, or property damage.

In the matter of discounting long-term compensation claim reserves, as I stated before, the law as respects reserves reduces the discount to 3½%. I don't want to get into an argument with Mr. Hipp on this point; I think, though, the situation is perhaps a little different from the standpoint of a company than it is from the standpoint of Section 27 of the Insurance Law. If you are running a reserve for compensation claims which does not vary very much from year to year, as is the tendency to-day because of the fact that such a volume of the New York claims are taken out of that reserve and put into the Aggregate Trust Fund, you might argue that the funds that are invested representing those reserves have been invested for a number of years; they haven't changed. In other words, your reserve moves progressively forward in about the same amount each year, therefore there isn't any change to speak of in your invested funds. That has been the situation for the past ten years and it is reasonable to argue that you should look at the interest rate from the standpoint of that prevailing when the reserve was built up rather than that prevailing to-day, because you're not investing new money.

Of course, I can see Mr. Hipp's point, and I am not going to comment on that except to say that, in recent years, we have been in a situation where premium securities, so to speak, carry a very low rate of interest. Should we take that as an indication of what is going to prevail in the future, or, to put it another way, is that due to natural causes, or perhaps to artificial forces? If it is due to artificial forces there is a considerable probability that the future course of interest rates may be up—that is, for a higher rate of interest. When you put a law on the books it is put on a more or less permanent basis; it's rather difficult to change a law overnight.

Nobody seemed to want to tackle this next question: "Reserves for Loss Expenses and for Incurred but Not Reported Cases." As respects reserve for incurred but not reported cases, I haven't anything further to say on that. I did present a paper on it a few years ago, but our experience since that time has been such that I haven't any further thoughts to offer. The methods we use seem to produce both adequate and reasonable reserves.

As respects reserves for loss expenses I don't believe anybody has the answer. If they have, I'd like to know it, because I think we could use it. It is a subject on which some light might be thrown after a good deal of study and perhaps time, tests, accounting and research. I am speaking mostly about the lines other than compensation and liability. We have a formula that we use for minor lines, so to speak, which we feel produces adequate claim expense reserves. It is not at all scientific. The great problem is, of course, to get a real adequate and scientific reserve—but the question is: "What would it cost you to liquidate the claims you have got as of a certain date." Well, you might say that your loss expenses run in a certain ratio to losses, year in and year out, and therefore that may be the answer; use that ratio. On the other hand, on known outstanding cases, one very substantial part of the unassigned loss expense, that connected with the investigation and adjustment to a certain point of the claim, has already been incurred and paid for, therefore it is my belief that if a company should cease business it would liquidate those claims at a much smaller ratio than the ordinary calendar year ratio of loss expenses to losses.

On liability and compensation lines we follow, in general, the methods which were proposed by a committee of this Society, which was set up and reported upon about ten years ago, I think.

I don't believe I can add much to the occupational disease reserve matter. I think Mr. Mills covered that very well. I couldn't follow him, exactly; it seemed to me his method was perhaps a little complicated; but I would say that, in general, we are carrying a reserve and building it up gradually to what we feel will be an adequate point, and we are also approaching it somewhat along the lines that Mr. Mills outlined, but we haven't got our data in shape to apply the formula exactly as he outlined it.

Of course, nobody knows much about this latent deferred liability, and we know very little about the rate of emergency, and you might say we know very little about the seriousness of the cases that may emerge. It is probably a matter that will be affected considerably by economic conditions in the future.

The next question I also notice nobody mentioned: "Utility of Schedules G, H, and O." Well, I haven't much to say about G and O. I think O, in particular, has a certain value; it is similar to Parts 5 and 5-A for liability and compensation. It tends to keep a company "on its toes" in the matter of putting up adequate claim reserves. As far as H is concerned, about all I can say is, in my opinion, it is absolutely useless and never has been and never will be of any value.

This next question is kind of a tough one, and I somewhat hesitate to get into it. It is a rather tough question now because the conditions under which business is written and premiums are collected have changed very substantially since the original unearned premium reserve requirements were established. As far back as I know, the fire blank provided the same sort of unearned premium reserve computation as it contains to-day.

The theory behind the computation of the unearned premium reserve when the requirement was originally put in the blank I can only guess at, but I assume that it was intended as a measure of what the company would have to pay back to the assured if it, for any reason, retired from business. It was and still is at times referred to as a reinsurance reserve. That is, if a company were to retire and reinsure its business with another company, it basically represents what the retiring company would pay to the assuming company. However we know, in practice, that while it basically is a measure, probably ninety-nine out of one hundred companies could reinsure that business at much less than the full unearned premium reserve for the simple reason that, assuming the business is average or even a little worse than average, the assuming company has not got to pay commissions on the business and it has not got to incur certain other expenses that were incurred by the direct-writing company when it put the business on the books. From that standpoint, the unearned premium reserve is, in most instances, excessive. There is a considerable margin which is usually referred to as equity which a company builds up or increases when it is increasing its business and which is released into surplus when it is reducing its business.

Now, in view of the fact that there is that equity, it seems to me that on certain minor matters we do not have to be too particular about getting the unearned premium reserve down to the exact penny. I think it has been argued, for example, on compensation policies subject to audit, that instead of setting up the advance premium with an expiration date one year following, you should set it up and carry the reserve for the full premium during the term of the contract, because you're going to adjust it. You will pay it back to the assured at the end of the period, less any amount, of course, that he owes you for the final audit. Well, if that were admitted, the companies would be confronted with the situation that it would be rather complicated to maintain such a reserve, but aside from that if we look at the other side of the picture, a policy written on a periodic audit basis is earning premium for the company which is also delayed in its collection by the company. In the first few months of the reserve the unearned premium on the deposit is rather substantial; as time goes on it decreases, but all the time there is something due from the assured, and when you get down toward the end of the period, I think you will find that the assured normally owes you more money than you are carrying in the reserve.

On contract bonds, I am sorry I can't contribute anything on that, nor on credit insurance.

Of course, on non-cancellable accident and health, I don't speak with authority at all, but we do know, in general, that the business has been unprofitable, and that additional reserves (what you might call "deficiency reserves") have had to be set up. There seems to be some difference of opinion among the companies as to whether those additional reserves properly should be added to loss reserves or should be added to the unearned premium reserve. Of course there are two ways of looking at it.

Now, on retrospective plans, about all I can say is that in our company we carry a reserve equal to 100% of the surcharge premium, both on the in-force and on the expired business. In some instances it might not be enough; in some instances it would be a little too much. Such a reserve of course is a nuisance to figure. We haven't as yet found any way of handling it except on an individual risk basis.

In general, however, in connection with reserves, from the nature of the business and the way it's written to-day, it is very difficult for any company to point to its reserve and say, "That is the actual figure." We don't know. I think about all we can do is to be sure that it is adequate, and in most instances I think it is.

In compensation insurance, for example, there is a deferred asset that the companies get from audits on annual policies, and I find that of course that varies with economic conditions, but I think the last time I looked at our figures we were still developing additional premiums on audit.

MR. NORTON E. MASTERSON:

Most of the comment on reserves made so far applied particularly to the financial standpoint; that is, from the standpoint of the annual statement. But of course adequate reserves are also important in determining manual rates and also important in determining experience rates.

Now I wanted to cover one section of the agenda, and that is: "Some Methods of Determining Whether or Not an Individual Company's Case Reserves Are, Within Certain Degrees, Adequate, by Certain Tests."

There are two types of such tests—retrospective and prospective. You might call the retrospective reserve tests those set up to determine whether in the past the case reserves have been adequate or inadequate. Those are familiar to you; I just have to mention a few of them. One is to determine the value of your claims on an incurred year basis in the past with the incurred costs at subsequent year-ends and to make a comparative valuation. Parts 5 and 5A illustrate that method.

I'd like also to stress what was brought out by Mr. Mills and, I think, by Mr. Tarbell, that these various insurance publications should clearly set forth that Parts 5 and 5A are tests of the individual company case reserves, some of which include loss expense and some of which include losses only, and that they are not tests of these reserves of a casualty company which it presents to the public. It is not a test of the annual statement statutory loss reserves.

Schedule O is also a method of testing loss reserves retrospectively, while another method is known as the run-off method—that is, the valuations of claims after settlement are checked with the reserves at the end of a previous period. You must select a year-end date, comparing the loss reserve as of December 31st with the subsequent settlement payment, and not take the reserve which happened to be on a claim a week or so before the claim was settled.

These tests are all important from the standpoint of trying to determine whether or not your case reserves have been adequate. Testing case reserves before you use them in your reports is probably more important.

I shall mention three methods here of pre-checking your case reserves prospectively. One is the average cost method based on trend. For a particular accident year, you have a count of the total number of accidents or notices received and you have, from your records, the average incurred cost per notice in the past. That incurred cost per notice can be developed either up or down, according to current conditions, by a factor such as the ratio of your average settlement cost for the current year as compared with the previous year. This developed average notice cost multiplied by the number of notices will give a standard for incurred cost. If you deduct your actual payments you will get a reserve figure which can be used to check your actual aggregate case reserves.

A second method is that of the minimum loss ratio. That method would be rather difficult to use at the end of this year, as it is unreliable whenever there has been a drastic change in rates. The method is to check your past experience to determine for each line your average loss ratio for the line, and then to apply that ratio to your latest data to determine whether or not your case reserves as set up will give you a loss ratio which is higher or lower than that average. As I stated, unless there is a normal growth and not much change in rate level, that method of checking reserves prospectively is not very desirable.

Now from the standpoint of filings for experience to be used in manual rates, etc., perhaps the best method is this third one—a good review of individual cases prior to the year-end. For the larger companies, it is probably the practice, and desirable, to evaluate the newer claims—say those reported within sixty days—on some average method, but I think it is imperative that the companies actually make a reserve study of the inventory of claims somewhere near the end of the year. This should be done as a special job rather than to rely on reserves set up by claim men. The latter estimates are usually low and not as adequate as they should be since the purpose is that of final settlement rather than the maintenance of adequate reserves.

There is one further point that hasn't been brought out. On this whole subject of reserve adequacy, the reserves on paper may be redundant by 10% or 20%, but it is most important to examine the assets. If the assets of a company are subject to violent fluctuations and contain a large proportion of non-liquid items, then an indication on the liability side of a redundancy of 10% or 15% may not mean anything. When the settlement time comes, the quality of the assets—the liquidity, etc., is the really important point in a determination of whether or not the reserves are adequate.

MR. C. G. VAN DER FEEN:

In response to annual calls for experience to its member companies the National Bureau receives annually detailed data by class and territory for lines of business under its jurisdiction. In addition, an increasing number of stock companies not members of the Bureau are necessarily filing their experience annually with the National Bureau for certain states which have appointed the Bureau as official statistical agency.

Necessarily a very careful review and audit has to be made of all incoming experience, especially that pertaining to the latest two policy years, to insure that the reserves for outstanding unsettled claims are adequate but not redundant. In view of the detail in which experience is filed, it is possible to check the trends of individual company reserves over a period of years and to recommend to any carriers whose data indicates an under or overestimate of reserves for unsettled claims, that they take the necessary steps to correct their procedure. This is a constant function of the auditing division receiving the experience.

Reserves for outstanding losses for the latest incomplete policy year are obviously the most important and are possibly subject to the most violent fluctuations. A number of years ago a major step to correct such possible fluctuations was instituted whereby carriers are required to report reserves for outstanding losses for each of the latest two policy years for all outstanding claims as of the preceding December 31, either for the amounts actually paid at the time of their inclusion in the compilation of data to be reported, or as respects those still open, at the valuation carried on such cases at the time of their inclusion in the compilation. In addition, carriers are required to include in their reportings for the latest two policy years "incurred but not reported losses" defined as "all claims which arose out of accidents occurring prior to January 1st of the year of call but which were reported to the carrier during the period January 1st to May 1st of that year."

Under the above prescribed methods carriers are enabled to report credible values for all losses arising out of accidents which occurred up to December 31st of the year prior to the year of call, since the amounts of reserve which they report represent the developed value of such accidents, whether closed or unsettled after at least four months' development.

Under the present statistical system for Automobile and Miscellaneous Liability lines carriers report annually developed policy year experience for policy years developed to 12, 24 and 36 months on most of the major classes. In addition, for certain classes policy year developments are received up to a period of 60 months. Although it is not possible under this system for a statistical agency to check the adequacy of loss reserves on any certain number of claims or on any group of claims by accident year, a careful study of each policy year's developments from 12 to 60 months furnishes very credible indications as to the adequacy of each carrier's reserves.

I wish to stress the fact that reserves for unsettled claims used for ratemaking purposes include reserves for allocated claim expenses and represent carriers' individual case estimates valued in the light of the known facts at least four months after the date of accident. Thus they do not agree with reserves shown in Convention Blank Annual Statements or in any other usual form of report which is compiled by the carriers.

Mr. Perryman has asked that I treat briefly of the method of reserving for rewards payable under the Automobile Safe Driver Reward Plan. Necessarily, carriers writing automobile business under this plan had to make provision to build up and maintain reserves for the rewards which in due course are paid assureds who earn them. Carriers writing business subject to the Safe Driver Reward Plan build up what may be termed an additional unearned premium reserve of from 13.2% to 15% of the premiums eligible for the reward and also maintain these special reserves for at least thirty days after the expiration of such policies, since the guaranteed rewards payable to eligible risks who ultimately qualify for these payments are not payable until at least thirty days after the expiration of the policies. Although many optional methods of building up this reserve are practicable, the usual method followed is to calculate the standard pro rata premium reserve based on 85% of the business in force eligible under the Plan, plus 15% of the total in force.

There is only one other matter which I would like to bring to the attention of this meeting. The New York Casualty Experience Exhibit, which must be completed and filed with the New York Insurance Department annually by companies writing business in New York State, provides that the reserves for unpaid losses should represent for each line of insurance the total of the companies' own individual estimates of outstanding claims plus a reasonable reserve for claims incurred but not reported. In addition, the exhibit provides for an adjustment item in case any companies' Statutory Schedule P reserves exceed the company case estimates. In recent years I believe there has been a tendency on the part of some carriers at least to neglect to include in the Casualty Experience Exhibit a reasonable reserve for incurred but not reported losses. Since every carrier undoubtedly has such losses accruing, the instructions on the Exhibit blank for their inclusion should be followed uniformly by all carriers who file the Exhibit.

REVIEWS OF PUBLICATIONS

CLARENCE A. KULP, BOOK REVIEW EDITOR

The Case for Experience Rating in Unemployment Compensation and a Proposed Method. Herman Feldman and Donald M. Smith. Industrial Relations Counselors, Inc., New York, 1939. Pp. 66.

This is the first of two monographs on experience rating in unemployment compensation from the viewpoints of its proponents and its critics, to be published by Industrial Relations Counselors, Inc. It defends the principle of varying contributions to the unemployment fund on the basis of employer experience and proposes a method claimed to be superior to other methods. The parallel study of experience rating from the viewpoint of its critics is now in preparation.

The authors discard the term "merit rating" which unfortunately is too frequently used to designate the principle of varying contributions according to experience. The label of "merit rating" frequently leads to the following argument: under "merit rating" employers in stable industries would obtain a lower rate without any special effort to reduce unemployment; since no special effort is required such employers cannot be regarded as "meritorious"; therefore "merit rating" should be abandoned. A better procedure would be to abandon the label and to judge the principle on its merits rather than on its "merits." A rose by some other name might have more social justification.

Four arguments are given for varying contributions according to experience:

1. It provides a financial incentive to the employer to refrain from deliberate practices tending to increase the burden on the fund and to take any possible steps to reduce unemployment.

2. It allocates the cost of unemployment to different products in proportion to the amount of unemployment incident to their production.

3. It permits the inclusion of seasonal industries in unemployment insurance without unduly burdening the fund as the rate-varying mechanism would assign higher rates to such industries.

4. It stimulates employer interest in the economical administration of benefits.

Experience rating provides a system intermediate to the two objectionable extremes of "pooled fund" and "employer reserve account." It combines the best features of each without the objectionable features of either. It has existed in workmen's compensation and certain other forms of insurance for so long that its existence is taken more or less for granted. For public administration, though, one may wonder if the rose isn't too thorny.

The experience rating method proposed by the authors may be described as substantially a limited-range "cost-plus" method, with the range of rate variation limited to 4 or 5 per cent of payroll. They pay scant attention to the difficulties that arise in assessing the excess losses of some employers against other employers and the difficulties in applying the method to small employers. The application of this method might well result in the granting of rate reductions when the fund as a whole is operating at a loss. The primary object should be to remain solvent. I imagine that actuaries who have worked with experience rating in workmen's compensation will be as little impressed with the authors' proposed method as the authors are with theirs.

Apart from the proposed method of experience rating, this monograph should have considerable value in clarifying matters for non-technical individuals. Experience rating technicians may be somewhat bewildered and perhaps rather irritated.

J. B. Glenn.

Disability Evaluation. Principles of Treatment of Compensable Injuries. Earl D. McBride, M.D. J. B. Lippincott Company, Philadelphia, 1938. Pp. xvi, 635.

At its tenth annual meeting held in St. Paul, in September, 1922, the International Association of Industrial Accident Boards and Commissions adopted the report of a committee appointed to work out a uniform system of compensating permanent disabilities. Until that time, under the prodding of Carl Hookstadt, the problem had received considerable discussion at the annual meetings; since then it has received little attention, and particularly since the death of Hookstadt in 1924. The report concerned itself mostly with the standardization of the percentages of total disability (or the equivalent in number of weeks) to be given for a limited number of obvious permanent disabilities caused by dismemberment. These "flat rate" schedules are found in most compensation acts.

The report of the committee did not give any consideration to the evaluation of non-dismemberment permanent disabilities resulting from fractures, deformities, ankyloses, nerve injuries, pains, atrophies, etc. As a result, there is no uniformity and practically no standard by which to determine how much compensation shall be paid for such disabilities. It has apparently been left up to the attending or examining physician in each case to make an estimate of the percentage of loss of use as compared to the amount to be given for total loss by dismemberment. As expressed by McBride "it is on the physician's estimate in arithmetical preciseness of the physical handicap that the legal authorities judge and award monetary sums to the victims of mutilation and infirmity." But the doctor has no rules or standards to work by except his own empirical knowledge, modified in many cases by his individual bias, prejudice and self-interest. Self-interest is induced by self-justification of his own treatment and by hopes of future cases to treat or examine.

The author of this book attempts to supply the deficiency by setting out certain rules and considerations for the purpose of interpreting "the physiological and mechanical alterations arising out of injury to the motor structures of the human body, and to reasonably appraise and evaluate the extent of functional loss as it relates to the economic incapacity of the injured." At the same time he recognizes "that the difficulty lies very greatly in the difference of the attitudes of physicians toward making evaluations of disability in terms of percentages."

Concerning this difference in attitudes of physicians, the author states:

> Testimony on questions of permanent injury and evaluations involve the physician in a matter that is without the usual sphere of his training. . . . Such a demand is entirely foreign to the customary reasoning and prognostic determinations of the physician. Since he probably has never done hard manual labor he is incompetent to testify from experience as to the ability of an injured laborer to perform his duties. Furthermore, the average physician is not accustomed to being definite. . . . Guessing at percentages seems more in order than scientific reasoning.

The first 3 chapters of the book deal with workmen's compensation in general, standards for physical examination and disability evaluations. Chapter 2 outlines the author's scheme of evaluation, and the rest of the book applies these evaluation principles to the disabilities caused by ankyloses (10 chapters), fractures (10 chapters), the industrial back, nerve injuries, amputations, head injuries, eye injuries, ear injuries, burns and hernia (one chapter each).

The heart of the book is Chapter 2, describing the method of evaluation of the extent of disability through an analysis of function. The author disagrees with a common practice of defining function in terms of altered shape, size or motion and defines function as "what one can do." He then proceeds to analyze functional disability according to 7 factors: slowness of action, awkwardness, weakness, insecurity, fatigue, increased risk and impaired prestige; as opposed to normal functions of quickness, coordination, strength, security, endurance, safety and physique. Each factor of impaired function is given a certain weight and the total weights must add to 100, and no more nor less. Each factor is to be given a weighting according to its relative importance in the working capacity of the individual. The relative values of any of these factors will vary in many ways, in various cases. The relative weight to be allowed for each of the 7 factors is to be determined by the physician.

Herein lies one weakness of the method. The author has already admitted that evaluation of disability is entirely foreign to the customary reasoning of the doctor and that most of his estimates are guesses. In discussing the application of the scheme to disabilities caused by ankyloses the author emphasizes the importance of age and occupation in determining disability and it is quite likely that most doctors will consider other factors than disability alone in fixing the relative importance of the weights to be given the 7 factors. The proposed method adds still further considerations for the doctor's guess, and there will still be a lack of uniformity in disability ratings.

Where a compensation law allows a definite number of weeks of compensation for the total loss of a member, without regard to age, occupation or other factors, it is illogical, and perhaps illegal, to consider these factors in computing the amount to be paid for partial loss of use.

The premise that the total of the weights allowed for the 7 factors cannot add to more than 100 is also open to question. Because a person cannot be more than 100 per cent disabled, it does not follow that the sum of the ratings given for various dismemberments causing partial disability cannot add to more than 100 per cent. For example, weakness may be given a weight of 20; yet weakness of a leg or arm may result in nearly total disability of that leg or arm, without giving any consideration to any of the other 6 factors.

In the reviewer's opinion the practice of allowing or requiring the medical profession to make disability ratings is wrong. The doctor can report or testify as to questions of fact or scientific opinion; but the evaluation of the amount of compensation to be paid for an injury is a quasi-judicial function and should be a duty of the industrial commission which stands in the shoes both of judge and jury. In California, the doctor never makes the rating; he reports the facts of disability and the commission fixes the rating in accordance with all the facts in evidence, both lay and medical; all ratings are computed by a special department, according to the commission's own rules and precedents, and knowledge of occupational requirements, industrial processes, effects of age variation and legal considerations. The commission's volume of experience is much wider and broader than any doctor could ever expect to have.

In the chapters dealing with end-results of injury, a great deal is said about proper treatment to prevent loss of function and here the author is on more familiar ground. The economic importance of unfavorable end-results of treatment is noted by the author; and his conclusions can be of much value to the doctors.

> The purpose of the treatment of fractures is to restore the damaged structures to as near normal anatomic alignment and form as is possible, in order to prevent deformity and disability. . . . Permanent disability could be greatly diminished if those who take the responsibility of treating fractures would qualify themselves in knowledge and equipment necessary for competent workmanship. Ingenuity, good judgment and a profound respect for mechanical exactness are essential to success. . . . Each case is different and each must receive technical attention. (p. 272.)

In addition to several typographical errors there are several misstatements of fact. On page 1, the author states that the total costs of occupational accidents resulting in personal injury or death in 1936 amounted to $660,000,000; and that the medical expense, including doctors' and hospital fees, amounted to $40,000,000 or a ratio of 6 to 100. These figures are the same as given on page 57 of *Accident Facts,* 1937 edition, issued by the National Safety Council. For the State of New York alone for the policy year 1936 the National Council on Compensation Insurance reported total losses on insured business only of $38,162,909, and medical costs of $12,014,668 or a ratio of 31.5 to 100.

On page 16, it is stated that in most states compensation is paid during the whole period of improvement, and in addition a specific amount is awarded for permanent disability. (Less than half of the states allow for permanent disability in addition to temporary disability. *Serial No. R 815, USBLS 17.*) Table 12 on page 65 purports to give the relative values of dismemberment ratings evolved by the IAIABAC committee on disability ratings, and lists "loss of arm at shoulder—100 per cent; loss of leg at hip joint—100 per cent; loss of both eyes—100 per cent." (The committee did not include loss of both eyes, or any disability causing permanent total disability. *333 USBLS 79, 80.*) On page 598 the author erroneously states that the table of Dr. H. H. Kessler for loss of hearing is based on a schedule allowing 40 per cent for loss of hearing in one ear. (The table clearly shows that loss of hearing of one ear is valued at 10 per cent, and loss of hearing of both ears at 40 per cent. Dr. Henry H. Kessler, *Accidental Injuries,* p. 449.)

On medical questions the author makes several categorical statements which without conditioning or qualification are too broad and are certain to be disputed by medical men. Only a few are quoted:

The physical examination should be complete in every case. This applies to minor as well as major ones. (pp. 67, 110.) (This is a question that should be left to the judgment of the doctor. Many cases do not require a complete physical examination.)

In the various positions of ankylosis (any limitation of motion is defined by the author as ankylosis) in degrees of dorsiflexion or palmar flexion of the wrist joint, limitation of rotation (of the forearm) is usually present. (p. 167.)

A hand is seldom stiffened in a functionating position. Without the use of the hand grasp, all the wide excursions of the elbow and shoulder are useless. (p. 177.)

The normal range of motion of the fingers is through an arc of 90 degrees at the knuckle joints and interphalangeal joints. (p. 183.)

Without the fingers or thumb the hand becomes a club. (p. 202.)

If one finger only is flexed into the palm and cannot be extended, the other fingers will have normal opening and closing ability. (p. 204.)

Stiffness and contracture of the fingers are nearly always a source of disability in fractures of the forearm. (p. 359.)

The occurrence of epilepsy is about 10 per cent. in cerebral injuries. (p. 567.)

R. E. HAGGARD.

Economical Administration of Health Insurance Benefits. International Labour Office Studies and Reports, Series M (Social Insurance) No. 15, Geneva, 1938. P. S. King & Son, Ltd., London. Pp. vii, 332.

"The purpose of this work," as stated in its preface, "is to place at the disposal of national administrative services, sickness insurance institutions and medical associations a body of information that will help them to carry on their work of promoting the most scientific, and at the same time, economical organization of the benefits in kind granted by sickness insurance funds." It does not, therefore, deal with the basic question of the social value of providing social sickness insurance benefits in kind. It concerns itself mainly with the special problem of administering such benefits in the most economical manner compatible with the purpose of the legislation establishing them.

This being so, this volume will undoubtedly be of primary interest to those charged with actually administering such benefits: governmental officials, fund officials and above all medical practitioners. Nevertheless, even in countries where there is no "social sickness insurance" it should be welcomed by organizations or groups of individuals anxious to familiarize themselves with the implications of this approach. For such organizations or groups, and they are by no means lacking on this continent, the book will have an important secondary value. Though it may not serve to shift many converts from one camp to the other it should at least prove educative, and so contribute toward lifting our perennial controversy between the proponents and opponents of health insurance, socialized medicine, etc., to a more scientific plane.

Even aside from the question of social insurance various professional groups, more particularly the medical man, should profit from this work. Thus doctors generally will no doubt be interested in the emphasis placed on the biological-functional conception of medicine, which insists on recognizing not only the disease but the patient's personality and environment. The private insurance man concerned with administering health benefits will likewise find of interest the section on "certifying unfitness for work," where such unfitness is viewed as relative to "the disease, the patient's personal character, his environment, and his previous occupation, including the distance he has to travel to work, the nature of his job, the danger to his fellow-workers, etc."

The work is divided into 3 parts. Part I (129 pp.) is referred to as only a "preliminary general study" of "a small number of problems that have to be met both by the doctors and by insurance institutions in organizing the benefits in kind of sickness insurance on economical lines." Nevertheless, it is a "comprehensive picture" and a "systematic survey" on an international scale "of the whole activity of the insurance practitioner (diagnostic, therapeutic and preventive) from the point of view of the application of the principle of economy." It aims, without laying down "new or rigid rules," at bringing "recognized principles into greater prominence," and its "sole purpose is to stimulate discussion and contribute to developing among insurance practitioners an attitude of mind favorable to the principle of economy in sickness insurance."

What is this "principle of economy" the application of which to sickness insurance is the general theme of this work? Basically it is a matter of efficiency: securing "the best results with the least expenditure." It postulates, according to this study, exact knowledge of the aim in view and calls for a choice as to the most effective means and methods of achieving it. Every stage must be carefully thought out, thus excluding sole reliance on intuition, natural abilities or traditional methods. At the same time being based on reason it is not bound to complete mechanization or even "established and constantly improved routine."

All this is not to say that the principle is not subject to definite limitations. For example, it is "only a relative standard by which to measure the efficiency of an action, more especially in the organizing and technical fields, where the principle of the least costly method can be applied."

Why is this principle of crucial importance in sickness insurance? The reasons given may be summarized as follows. The wage-earners who constitute the great bulk of the membership of a social insurance scheme come mainly from the "economically weaker sections of the population." The contributions made by or for them take the form of compulsory deductions from payroll. If these deductions are not to interfere with the vital needs of the insured or seriously impair the employer's margin of profit, they must not constitute too high a proportion of the wage. Consequently there are definite limits to the amounts which can be raised. On the other hand the occupational, economic and social conditions under which the wage-earning population lives give rise to special health hazards such as do not beset those who are economically more independent. "A comparatively slight illness may lead to unfitness for employment and consequent poverty." The situation is aggravated by the characteristic psychology which makes those whose personal or family security depend on current earnings more prone to fear illness and worry about recovery—states of mind which serve to intensify demands on the insurance scheme for treatment, drugs and financial protection. It is "in order to maintain a reasonable balance between their limited means and the demands of the insured population" that "the sickness funds are obliged to administer their benefits in each individual case and as a whole in accordance with the principle of economy—that is, to secure the best results with the least expenditure."

Indeed, the claim is made for this principle that it constitutes the dynamic force that in different countries "guides the evolution of sickness benefits along the same rational course." In a new insurance scheme benefits in kind are soon added to cash health benefits with a view to promoting the insured's recovery. The former at first of a modest nature are then expanded to take in almost every known form of specialist and institutional care. Eventually benefits, cash as well as kind, are extended to the insured's family since his own well-being is bound up with that of his dependents. Finally the emphasis shifts from rehabilitation to preventive measures, individual and general, designed in the last analysis to make the sickness insurance scheme "a means of safeguarding (rather than just attempting to restore) the health and working power of the economically weaker sections of the population."

In Part II (164 pp.) the theory developed somewhat abstractly in the first part is quite thoroughly supported by reference to the actual situation in 7 European countries that have adopted specific measures for economical treatment and prescribing (or prescribing alone). These are Czechoslovakia, France, Germany, Great Britain, Hungary, Poland and Yugoslavia. A thorough analysis is made of "the laws, regulations and principles concerning economical treatment and prescribing" in these countries.

Part III (10 pp.) gives excerpts from conclusions on the economical administration of medical benefits reached by various international bodies: a committee of experts set up by the International Labour Office; the International Medical Association; and the International Conference of National Associations of Health Insurance Funds and Mutual Aid Societies. It indicates the nature of the principles on which it is possible for such bodies to achieve a degree of international agreement.

For those who wish to delve more deeply into the subject than this volume alone permits, there is also provided an extensive bibliography, including references in the languages of all the countries dealt with in Part II.

We in the United States would seem to be peculiarly fortunate in the opportunity offered us in this volume to profit from the crystallized wisdom (not to mention mistakes) of more than half a century of European experience in the most complicated and administratively most difficult of all branches of social insurance. We have every reason to be grateful to the International Labour Office, and in particular to Dr. Walter Pryll who supervised the preparation of Part I for giving us this opportunity.

J. D. Craig.*

* Mr. Craig wishes to acknowledge the cooperation of Mr. G. W. Grange in the preparation of this review.

Frequency Curves and Correlation. Third Edition. W. Palin Elderton. The Macmillan Company, Cambridge at the University Press and New York, 1938. Pp. 271.

The first edition of Sir William Elderton's *Frequency Curves and Correlation* containing 172 pp. was published in 1906 for the Institute of Actuaries. The second edition, somewhat enlarged, was issued in 1927 but not under the auspices of the Institute of Actuaries. The deep and increasing interest during recent years in the subject of mathematical statistics has made the appearance of this Third Edition most welcome. It is really much more than "just another edition" for the book has been altered in many respects and a number of chapters have been rewritten.

In all 3 editions the first part has to do with frequency curves and the second with correlation. The treatment of frequency curves is covered in the first 6 chapters in 140 pages. As the author points out the book presupposes a knowledge of the elementary principles of statistics. In the first 2 chapters he reviews the fundamental properties of frequency distributions and presents to us the problem of finding the curves which will best represent the trends indicated by these distributions. In Chapter III fitting curves by the "method of moments" is treated and it is stated that "experience has shown that it is a satisfactory method of fitting a curve to an actual statistical experience." Arithmetical examples are given which demonstrate the practical applications of the methods described. In this chapter the treatment with regard to the summation method of calculating moments has been revised. Curve fitting by the method of moments takes into account in a systematic way the whole of the observations. It thus provides us with a curve which faithfully represents the data. It treats the ends of the range of observation in the same way as the rest of the range. In fact, on account of the form of the function used the tails may unduly affect the values of the constants. In some cases a truer idea of the trend might be secured if less importance were given to values near the ends of the range.

In Chapter IV the author discusses the principal types of curves applicable to frequency distributions. He describes the 3 main types corresponding to Karl Pearson's types I, IV and VI, and 10 transition types, including among others the normal probability curve. These are collected in Table VI following page 50. This table shows in summarized form the equations of the 13 types, in the form usually adopted by Pearson, and also the forms with the origin at the mean of the distribution. It shows the criterion to determine the type of curve to be used, also the general properties of each type. In Chapter V the methods of finding the constants involved in each of these types is illustrated by means of a numerical example. In Chapter VI the author compares the suitability of the types he considers in Chapter V, with types used by Charlier, Edgeworth and others.

Chapters VII - XIII deal with the subject of correlation. Chapters VII, VIII and IX deal with the coefficient of correlation, Chapter XII with the correlation ratio and Chapter XIII with partial correlation. Chapter X has to do with *Standard Errors*. Here it is worthy of note that criteria of significance are expressed in terms of standard errors rather than the more usual "probable errors." In Chapter XI on *Tests of Goodness of Fit* the "degrees of freedom" rule is used and the chi-squared test is discussed briefly.

The book contains 9 Appendices. Appendix I on *Corrections for Moments* has been rewritten, particularly in the part referring to J-shaped curves. Appendices II, III and IV are mathematical notes on Beta and Gamma functions, on the derivation of the equation of the normal surface and on the integration of certain expressions involved in finding the equation of the normal probability curve. In Appendix V other methods of fitting curves are discussed: the method of least squares, the method of maximum likelihood and the method of minimum chi-squared. Appendix VI is a key to actuarial terms and symbols used. In Appendix VII a selection of chapters and sections is made for the reader who wants to get a general idea of the subject but who may not be interested in the mathematical details. Appendix VIII gives a well-selected list of books and papers on the subject, brought up to date. Appendix IX contains a short table on the ordinates and areas of the normal curve of error in terms of abscissa, and of values of P, for testing goodness of fit, for certain values of chi-squared and *n*.

The book has been exceptionally well prepared and its production is a credit to the publishers.

L. A. H. WARREN.

Health Insurance Plans. A. *Mutual Benefit Associations;* B. *Group Health Insurance Plans;* C. *Company Non-contributory Disability Benefit Plans.* National Industrial Conference Board, New York, 1938-39. Pp. 34, 31, 27, respectively.

These booklets are part of a series of *Studies in Personnel Policy* that are being made by the National Industrial Conference Board. Each of the three is a survey of health insurance plans of the type indicated by its title. Each gives tabular information regarding the plans studied, outlines the provisions of representative plans and comments on the operation of plans of the type in question. These studies are timely because of the present widespread interest in some kind of national health insurance and because of the various hospitalization and similar schemes that have flourished in recent years.

It will of course be noted that this general study has been broken down by method of administration. Mutual benefit associations are administered largely by employees, company non-contributory disability benefit plans by employers and group health insurance plans by a third party, usually a life insurance company.

The text of the third study of this series ends with a comparison of the 3 plans. The greater stability of the group insurance method is pointed out as is also the lower cost of the other two methods. The more personal nature of the mutual benefit plan and the company disability plan is stressed, with a corresponding freedom to make special settlements in individual cases. The employer seems to value health insurance plans of any kind because they are helpful in improving the health and the attitude of employees. The studies consistently distinguish between the advantages of the plans as seen by employers and employees. The evaluation ends with the following comment regarding company non-contributory plans:

> A sense of security and freedom from the fear of the possible consequences of a prolonged illness have also been listed as important advantages for the insured worker. Officials in charge of administering these company non-contributory disability benefit plans agree that the gains in employee happiness and ease of mind represent a psychological improvement that is worth more than can be measured in dollars and cents. The better health of the working force also means less sick time and, therefore, higher production. Improved morale pays both employer and employee.

These publications are almost exclusively factual and because they are very much condensed, a review can do little more than state the fact of their publication and tell in a general way of their contents.

RAINARD B. ROBBINS.

Health Insurance with Medical Care. The British Experience. Douglass W. Orr, M.D., and Jean Walker Orr. Macmillan Company, New York, 1938. Pp. xvi, 271.

The Orrs have achieved in their book an exceedingly deft combination of popular style and sound scientific method. It bears few of the impedimenta of scholarship. Large sections of it, as a matter of fact, are bright and chatty. That must not scare off the serious reader. The Orr book has a number of claims to consideration, not the least of which is that for once an American doctor (with his trained social worker wife) has actually gone to see for himself about this dreadful thing called health insurance. The basic materials of this book are two: a more than usually intelligent field survey of British health insurance and related services and a study on the ground (where they really take on meaning) of published sources. The first is much the more important of the ingredients. The field survey gives point and force to the "facts" in the laws and regulations and official reports. In turn a human and often anecdotal approach and style, richly garnished from the responses of all sorts of folk in interviews, gives point and force to the field survey.

One feature in which the Orr book is unique is that for once we have a look at health insurance not as a single institution but as a part of a vast and complicated congeries of medical and social services, compulsory and voluntary, contributory, semi-contributory and free, that care for the sick Britisher and to a lesser extent try to keep him from getting sick. Too many books on social insurance (too many books on every subject) are complete little objects in themselves, beautiful models of this and that neatly preserved in intellectual aspic, detached completely from the customs and habits and institutions that touch and condition it on all sides. One is grateful to the Orrs for the rest of the British picture: the brief but useful descriptions and analyses of voluntary hospitalization plans (devised to fill a gap in compulsory insurance and therefore a lesson for us), hospital facilities in general, Public Assistance medical facilities and other public health services.

The general point of departure is "a medical as well as a social and economic study . . . to find out at first hand not only how the public in general reacted to health insurance but . . . working people and British doctors . . ." One gets a significant hint of the permanence of health insurance in the British social and economic scene and the matter-of-factness with which it is regarded when one learns that even a Royal Commission feels no need to find out from workers themselves and their families what they think of health insurance. The Orrs have supplied this lack from hundreds of conversations not only with workers but with all kinds and conditions of Britishers, from civil servants to MPs. (I am sorry to have to report that they evidently did not include commercial insurance company officials.) Of insured persons 196 registered their opinions, apparently quite candidly, 75 through personal interviews and the remainder by questionnaire. Assuredly this is not an adequate sample in the technical sense and the purists will certainly call attention to the fact. Whether, had the sample been multiplied many times, the same general conclusions would have emerged one cannot know as a statistical certainty. This reviewer believes the conclusions are sound, but in the last analysis he believes this for the same reasons the Orrs believe it: the evidence runs so clearly in certain directions; he also has had on the ground the "feel" that Britishers are so certain of the principles of public health insurance that they consider them past debate. (On details and improvements there is considerable discussion.) The Orr study seems to me to be useful and significant indeed not because it tells us of new facts but of facts new to us and particularly to our doctors. Public health insurance has had a bad press in this country. An immediate reason has been the source of the reports on British health insurance in the *Journal* of the American Medical Association: "a man of over 70 years of age, who is not a member of the British Medical Association, and hasn't been for at least 30 years." The average American M.D. still doesn't know that far from fighting health insurance the British Medical Association for years has backed it heartily and demands officially its expansion and liberalization. Perhaps a book by one of their own will do something to open up a little an area till now marked out of bounds by the doctors. Among the reasons for the British Medical Association's position is that "self-reliance and independence are preserved and thrift promoted . . . and such a system permits and tends to maintain and develop 'some of the most valuable features of private practice—for example, as full a choice of doctor by patient as is possible, and the element of reasonable competition between practitioners' " (pp. 187-188). It sounds strange to American ears but the British Medical Association believes health insurance has saved the general practitioner from extinction. The Orrs agree.

What does the insured man and his family think? He is not unanimous of course, it would be suspicious if he were; but very clearly he believes not in less health insurance but more of it. He would like particularly the addition of medical benefits for his dependents (cash maternity benefits only are paid to wives of insured men). If he is critical of any part of the system it is of the multi-insurance bodies which inevitably bring with them very considerable differences between insured groups in the quantity and quality of benefits. He doesn't usually relate this inequality to the multi-fund idea but the fact is "that the rich get the cream and the poor the skimmed milk" of additional benefits, which can be paid only by the stronger Societies.

What the British commercial insurance companies think of all this, particularly those with mutualized departments competing with other Approved Societies in supplying health benefits, is not a part of this record. As a matter of fact, British insurance people feel about health insurance generally as the rest of the population, insured or otherwise. Of more import for American insurance men is the attitude of Britishers toward the commercial companies that insisted in 1911 on a share in the compulsory business and have since vastly enlarged their proportion of the total. Articulate opinion (most insured persons take this as well as other features completely for granted) is decidedly critical of the multi-funds and with the duplication and waste that results from thousands of competitive Societies trying to blanket the country and particularly of the "large, remote and impersonal industrial insurance companies" that are mutual principally in name. "The chief defect in the present health insurance set-up arises from the Approved Society system." But British high and low agree that there are almost insuperable obstacles to a reform in this direction. There are too many strong vested interests, the Approved Society is ingrained in the national mores and much more than his American cousin the Britisher hates to make changes and particularly wholesale changes.

The Orrs close with Chapter 11: *Some Implications for America.* These are good reading and although they are addressed especially to medical men have overtones for the insurance business. The authors check one by one the criteria in the so-called decalog of the A. M. A. on organized medical care with the British health insurance scheme as is, with some very interesting results. Of the 10 requirements several touch on insurance to a greater or less extent. No. 6 for example:

> In whatever way the cost of medical service may be distributed, it should be paid for by the patient in accordance with his income status or in a manner that is mutually satisfactory.

Broad enough surely to include prepayment on an insurance plan. No. 7 hits insurance obliquely but reading British experience not the less important for that:

> Medical service must have no connection with any cash benefits.

Finally No. 9, which will determine who is in and who out of the scheme:

> Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

One senses that the American M.D. is cautiously preparing for some form of compulsory contributory health insurance. It is a broad hint to American insurance companies and their personnel.

Lloyd George, who well over a quarter century ago placed compulsory health insurance on the British statute books, supplies in a short foreword a particularly appropriate footnote to history.

C. A. KULP.

Individual Reserves and Kindred Delusions. Henry H. Jackson. Privately printed, no date. Pp. 25.

Whether or not one agrees with the speaker at all points he cannot fail to enjoy this frank, enthusiastic and able address to the American Association of University Teachers of Insurance. Inspired with righteous indignation at the "carpings of assailants of an institution which by its own recorded performance magnificently refutes their charges" and at "well-authenticated letters" from the same assailants to their victims threatening to take whatever steps are necessary to collect their pound of flesh, the author has launched into a magnificent counter-attack, with somewhat more passion and less safeguard than Linton in his *Life Insurance Speaks for Itself.*

This reviewer shares wholeheartedly the author's contempt for the gentry for whom his "chaste vocabulary is restricted to the term 'persons' " (in another place he indicates he "should prefer the 'services' of skunks") and recognizes the general merit of the argument; yet he cannot but feel that Jackson's indignation has led him into shortsighted observations and conclusions.

Mr. Jackson points out that those to whom the assailants appeal do not realize that full information about any life insurance policy may be obtained without charge from the home office of the issuing company. But has he had it pointed out to him, as this reviewer has, that the insured, having perhaps been taken in on other so-called "investments" and having had his eyes opened by independent investigation or the District Attorney's office, may feel that the other party to the contract has a stake in it which will preclude its giving unprejudiced advice? He thought he could trust the financier. He has read of exposures of sharp practice of big bankers. Should we expect him to turn to his insurance company?

This reviewer admires as much as Mr. Jackson the public health and vital statistics work of the Metropolitan, but this does not seem to justify a costly system of industrial life insurance if the same social benefits can be provided at less cost. It does not seem to this reviewer "snobbish" for one who can purchase with annual premiums substantial insurance for the protection of his dependents to question the wisdom of the sacrifices of those "whose pennies are precious" to procure a "respectable exit," if that means merely a more or less costly funeral. If in the absence of insurance the burden of the funeral will be incurred by the family at even greater sacrifice, as is probably now too often the case, then the system of industrial life insurance may be justified on its own record, for surely the sacrifice of the insurance premiums is less than the exactions of the loan shark.

Jackson's explanation of the annual premium life insurance contract as the exchange of two promises and from that the development of the reserve prospectively is of course not new to actuaries, but it should be more often given to the layman. This reviewer has tried to do so (see his *Insurance,* 2d ed., pp. 416-7). It does not encourage the "own money" idea of reserve. Yet does it tell the whole story to the layman? If the company can still carry out its promise, despite the reduction in the value of the future premiums with the insured's increased age, it must have the invested reserve. Whence came it? If we explain it as a conservation of unneeded past payments, are we not back where we started?

Jackson refers with some admiration to the freedom of the British actuaries in choosing the valuation basis contrasting it with the American Experience 3 per cent net level premium reserve which he characterizes as "soundly conservative, but not highly realistic." It is some years since this reviewer has paid close attention to British valuation systems but unless they have changed in that time they can only be understood if it is known that they are set up to conform to a certain desired "scale of bonuses" or dividends. Is not that also the reason for net level premium reserves on the American Experience 3 per cent basis?

Jackson quotes the admirable precept of Samuel Johnson, "Clear your mind of cant," and then rightly shows that reserves are a matter of aggregates and that "properly speaking, no individual policy has an ascertainable individual reserve." True. But has it any more truly an ascertainable individual premium except in the sense of the contract specification? Is not the premium, too, a matter of aggregate and average? There follow illuminating and amusing illustrations of misuse of average concepts as though they had individual meaning. This is all to the good. But in stressing these must we not needs be careful not to undermine faith in our whole business, raising questions with the insured whether he has individual rights at all? Individual rights are very precious things in American psychology, and especially so in the present juncture of world affairs.

Jackson expresses the preference in non-forfeiture values for some form of reduced insurance protection and regrets the emphasis on cash values and particularly that these cash values have come to be related rather intimately in the public mind with individual reserves. In his judgment the theoretical cash value would be "the fair price for which the difference in value between the two unperformed promises could be disposed of in the open market." It is sincerely to be hoped that the followers of Gilbert and Sullivan do not read these words. If they do they might include in their next diatribe quotations from the recently published biography of Elizur Wright describing how he was inspired to fight for surrender values by having been taken by Barry Cornwall to the Royal Exchange to witness the auction of life policies which did not have cash values. If they had the gift of the Victorian Gilbert and Sullivan they might even make this the central episode of a comic opera with Mr. Jackson as the auctioneer.

Mr. Jackson goes on: "To make the net level premium reserve a measure of such stipulated value in a land of heavy acquisition expense, taxes, and overhead is just plain midsummer madness." It is not only midsummer madness. It is madness at any time of year. But most of our state laws make provision for reserve systems that are more realistic in relation to expense than the net level premium system. Is it cant or something else of which we should equally be free that leads companies not only to set reserves on the unrealistic net level premium basis, but to parade it as a virtue and by implication to condemn the more realistic preliminary term system?

This reviewer hesitates to raise further questions lest he leave the impression that he is one of the carping critics. He is not. He was in the employ of one of the large life companies at the time of the Armstrong investigation. He remembers some of the false charges then made (though not all were false) and the indignation he felt. He can sympathize with Mr. Jackson's mood. He has thoroughly enjoyed the lusty use of the quarterstaff. But the quarterstaff is not a modern weapon and is more apt to scotch than to kill. Will not a skillful rapier be more effective?

Suppose we recognize that there are some faults in the way policyholders are brought to cooperate through the institution of life insurance, that some agents do misrepresent and some are unskillful in fitting programs to needs. We have an educational work to perform here which is slowly (too slowly when we look at early year lapse rates) going on. Suppose we recognize that the insured is entitled to honest *disinterested* advice and feels there is no place where he can get it except from one who sets himself up as a counsellor in the employ of no company, an "actuary for the insured" as one "person" (to use Mr. Jackson's chaste term) calls himself. Suppose we recognize that it may give him real satisfaction to know that his life insurance program has been approved by an expert. May we not do the companies and the public alike a service by providing for licensing counsellors, after rigid examination of *qualification* and *character* by proper authorities and imposing severe penalties for counselling without license? This reviewer has heard it argued in opposition that to do so would admit incompetence in our present agency arrangements and dignify the critics. If there is incompetence should we not find it out? Would it dignify them more than to play quarterstaves with them? This reviewer is inclined to believe action of this kind might do for the life insurance something of what St. Patrick did for Ireland. The incompetent counsellors and the critics for whose description Mr. Jackson has no adequate word would in large measure seek other ways of living by their wits. Perhaps the qualified and licensed counsellors would then starve, the law be repealed and the cycle repeat.

A. H. MOWBRAY.

Labor's Risks and Social Insurance. Vol. II. Harry A. Millis and Royal E. Montgomery. McGraw Hill Book Co., New York, 1938. Pp. xii, 453.

Labor's Risks and Social Insurance appears as Volume II of a three-volume series on the economics of labor, the other 2 volumes being *Labor's Progress and Some Basic Labor Problems* and *Organized Labor.*

As against the more single viewpoint adopted by Rubinow, Epstein and Armstrong, this discussion of social insurance seems to aim at comprehensiveness of treatment and the avoidance of premature conclusions. There is every evidence that the authors have read widely and have profited by fairly direct contact with Professor E. E. Witte, Director of the staff for the Committee on Economic Security, whose work led up to the Social Security Act; Professor Paul Douglas, who was a member of the Advisory Council working jointly for the Social Security Board and the Senate Finance Committee; Dr. Isadore Falk, Assistant Director of the Bureau of Research and Statistics of the Social Security Board; and Wilbur Cohen of the Office of the Chairman of the Social Security Board.

Quite properly workmen's compensation is included in a general survey of social insurance. Rather surprisingly however from the standpoint of the importance of death as a risk of labor, the treatment of group life insurance occurs as a rather minor portion of Chapter V, *The Problem of Sickness and Non-Industrial Accident Among Wage Earners,* while invalidity and widows' and orphans' pensions occupy the seventh notation under the general heading of *Various Methods of Supporting the Aged.* This is undoubtedly the influence of individuals closely associated with the extension of the current Social Security programs. In a country which has developed life insurance protection to such a marked degree this minor recognition of the hazards of death seems to require explanation.

The discussion leaves one rather confused as to costs. In attempting to secure recognition of needs and of risks the tendency in pioneering social insurance is to make these risks conspicuous. Later, when it seems desirable to indicate that much can be done with these risks, there is the contrary tendency to minimize benefit costs. In this report the emphasis on risks still seems dominant. The costs of insurance are hardly visioned. In discussing the problem of work-injuries a foot-note indicates that the total annual loss may well be five billion dollars. In discussing sickness and non-industrial accident, the Five-Year Committee costs of 3.6 billions are quoted for medical care alone, while a figure of 900 millions indicates the possible loss of wages due to sickness. As in most general studies of the subject there is no consideration of the additional insurance costs of benefits to the underprivileged category. From the standpoint of insurance underwriters, dealing in an adequate fashion with substandard risks would seem to cost much more than dealing with the normal standard risks.

The book indicates even less familiarity with what we may call actuarial analysis in handling the problem of the industrially old worker than in its other sections, where actuarial analysis is so sadly needed but less expected. There is no apparent use of the constructive PEP *Report on the British Social Services,* which appeared in England in the summer of 1937. It may have been available too late to help the authors get perspective.

Many points set down in connection with old-age benefits and other types of protection under the Social Security Act evidence a lack of familiarity with the program. Thus on page 392 it is said "The Social Security Act extends this type of old-age security to some 37 million workers, or approximately 3/5 of those normally gainfully employed." The 37 million people are indicated in a foot-note as being those to whom numbers have been assigned up to February 1938. Numbers can be assigned to anyone, whether insured or not, while there are degrees of "coverage" not clearly evident in this brief discussion. Employees may be "covered" from the standpoint of the privilege to make tax payments without ever acquiring a right to a monthly income in old age. Early estimates of the proportion of gainful employment covered under the Act ran to about 50 per cent. Because of interplay between covered and non-covered employments and employment and unemployment, the statement that the Act covers approximately 3/5 of those normally gainfully occupied is less striking than the suggestions in recent testimony before the Ways and Means Committee that 80 per cent may have *eventually* some covered employment.

The method of discussing the employer's contributions in connection with both old-age benefits and unemployment compensation is thoughtful but not very convincing. There is a considerable evidence that nominal distribution of costs between the employer and the employee involves strategy more than economic reality. A fuller *knowledge* of shared costs under group insurance methods, so hard to achieve because oral tradition is so large a part of group wisdom, would have been very helpful to a fuller analysis.

In discussing reserves under old-age benefits the authors say on page 402: "If the benefits system is to be self-sustaining the choice is between reserves which will equalize the burden through a period of time and pay-as-you-go policy which will involve increasing contributions or increasing Government subventions with the passing of time." The authors are not alone in overlooking the further alternative of a change in benefit structure to "equalize the burden." Such a change is already being recommended by the Ways and Means Committee of the House.

The book, thoughtfully prepared, is already somewhat obsolete. It is doubtful just what Congress will do about modifying the Social Security Act before adjournment. The suggested modifications, which recognize the sound insurance features of benefits to aged wives and widows, to orphaned children and their widowed mothers and the virtual abandonment of the lump-sum settlements amounting to 3½ per cent of wages taxed under Title VIII, raise questions of social insurance theory which should speedily advance general thinking on the subject within the United States. I should rate the Millis and Montgomery discussion as a conscientious compendium of information in a field where the thinking has not yet crystallized. It seems an essentially honest treatise, carefully assigning credit to the sources from which the authors have secured their information. It is a vivid illustration of "another language."

WILLIAM R. WILLIAMSON.

Life Insurance. John H. Magee. Business Publications, Inc., Chicago, 1939. Pp. xxx, 729.

When William Lyon Phelps publishes his *Autobiography with Letters* in more than a thousand pages the discerning reader does not repine at the length. Some of the pages record very commonplace experiences or perpetuate unimportant correspondence. But throughout the entire work there shines the spirit of the author, the fullness of his good and happy life. His enthusiasm for puns, for people, for places, for life and literature, is not merely abounding; it is contagious. With a textbook it is a different matter. We do not wish the writer to set down whatever occurs to him as being more or less related to some phase of the subject, facts derived perhaps rather indiscriminately from a heterogeneous mass of material, some authoritative, some of merely passing interest and some no longer of the slightest pertinence even though it may once have enjoyed a reputation for soundness. Yet to extend a treatise on life insurance to nearly 750 pages, an author is tempted to do just about that, and my criticism of Mr. Magee's volume must be that the author has not steadfastly resisted this temptation.

In a disarmingly modest preface he confesses that a work originally conceived for the classroom has been extended by the inclusion of material more suitable for an agent's manual of instruction. Thus he clearly realizes the dangers resulting from this possible lack of unity. He does not, I fear, succeed in avoiding them. The requirements of a textbook on life insurance for students in a university are so entirely different from those of a company manual designed for the assistance and instruction of agents that the two are very nearly incompatible. Probably every agent should as a prerequisite to selling insurance possess the information essentially contained in the former, although unfortunately he frequently does not. But to burden the life of an undergraduate desiring an intelligent understanding of life insurance and its significance in our economic world with such mere business details as even few men in the field themselves care to be familiar with is neither useful nor desirable. And this appears to me to be precisely what a university teacher of insurance would be doing if he adopted the entire present text for classroom use. The alternative method of adapting it to a college course by the omission of paragraphs, sections and entire chapters is hardly practicable in this case since the trivial, the merely curious and the basically essential are so inextricably intertwined that any such attempt would place an intolerable burden on professor and class alike.

Quite apart from this broad criticism of the work, which seems to me to be fundamental, the text has other serious defects. I do not refer merely to the rather frequent typographical errors, which are perhaps pardonable in the first edition of so large a work. Some of these, like that on page 174—"The American Experience Table of Mortality underestimates the death rate on the basis of present day experience and therefore forms an extremely conservative basis for premium computation"—perpetuate in print a slip of the tongue in dictation. And spellings of proper names fare rather badly, from "McLintock" to "J. M. Lair." Others less obvious might the more perplex the conscientious student. The book is defective in accurate definition and in terminology. An example of the latter is the indiscriminate use of the terms *insured, insurant* and *insurer* unless indeed the term on page 238 is again a typographical blunder. Much more serious is the conspicuous absence of definition of many essential terms employed throughout the text or the introduction of a term long before the student can properly be expected to grasp its significance. The curious reader can readily enough satisfy himself of the validity of this criticism.

It is a singularly ungrateful task for an actuary to attempt the criticism of chapters dealing with his specialized subject written by one without technical actuarial training. If I say that the actuarial sections of the present volume are conspicuously inferior to corresponding chapters in Maclean's admirable textbook, not merely from the point of view of the actuarial student but, I am certain, from that of the conscientious teacher of an alert class, I have perhaps said all that is necessary.

The broad plan of the work is well conceived even though it leads to quite a bit of perhaps almost unavoidable repetition. Three introductory chapters constituting Part I should give the student a reasonable social and historical background. Part II devotes 3 chapters to insurance carriers in general and the organization of the home office and of the agency force. Part III comprises chapters relating to the measurement of mortality, plans of insurance and premium calculation. Part IV takes up the selection of risks, substandard risks, reserves and the distribution of surplus. Five chapters in Part V are chiefly devoted to policy provisions including coverage for disability and death by accidental means, with a concluding chapter entitled *Fundamental Legal Concepts.* Part VI develops a detailed analysis of plans of insurance and annuities, covered in 4 chapters. Part VII goes beyond the so-called ordinary branch to discuss industrial and group insurance and group annuities, with a possibly redundant chapter on business life insurance. Part VIII is centrally concerned with state supervision, regulation and taxation, but includes a chapter on trusts and one on the investment of life insurance funds. A rather extensive but not highly selective bibliography is printed after each of the 30 chapters. A special feature of the book is a series of painstakingly prepared and frequently highly interesting and suggestive questions designed to bring out the essential features of each chapter and occupying not less than 50 pages. A helpful 10-page Index follows.

HENRY H. JACKSON.

Payroll Audit Reference Book. National Bureau of Casualty and Surety Underwriters, New York City, 1938. Loose leaf. Not consecutively paged.

Many books have been published in the form of texts or manuals dealing with various aspects of the insurance business. Some have served the purpose of standardizing rules bearing on some of its specific elements, as underwriting, inspecting and rating. One of the recent additions to this group is the *Payroll Audit Reference Book,* the original printing of which is December 1, 1938.

Thus, somewhat belatedly, recognition has been given to one of the essential operations required to complete the insurance transaction. By making a preliminary inspection and applying the appropriate manual regulations it may be possible to establish proper classifications and rates for a risk at the inception of a policy but the premium remains purely tentative. There is still pending the culmination of the insuring process: the determination of the exact amount of premium due the carrier on expiration of the policy. This depends not alone on the technical skill of the auditor in methods of bookkeeping and knowledge of the pertinent rules of the manuals but also on his experience and ingenuity in analyzing accounts which are not always what they appear to be at first glance. In the course of a hearing before the City Court of New York not long ago Chief Justice Wendel aptly stated: "While the term 'audit' is sometimes restricted to a mere mathematical calculation or process, the word in its generally accepted sense includes an investigation and the weighing of the evidence and the deciding of whether or not the entries in the books are true and correct."

The impetus to the publication of a compendium of audit rules may be ascribed to test audits conducted by various bureaus during the last 6 or 7 years which have confirmed the need for some standardization of payroll audit procedure. As stated in the foreward and implied in its title it is the intent of the compilers of the *Payroll Audit Reference Book* that it should serve the purpose of a convenient reference book and guide. Essentially it is a handbook for field auditors and has as its object the development of uniformly accurate audits of workmen's compensation, general liability and automobile policies. The contents are not binding on the carriers, except in the instance of specific rules which have been adopted by the committees of the various bureaus for application within their respective jurisdictions. Carriers retain the prerogative of amplifying or modifying general instructions to their field men to suit their individual requirements. The book, like the manuals, is printed in loose leaf form to facilitate additions and amendments. It comprises 3 sections, the subjects within each arranged in alphabetical order. The first section embodies abstracts from manuals, excerpts from the compensation acts of the various states and general instructions. The second section contains rulings and interpretations selected from circulars issued by the National Council. Rulings and interpretations selected from Bulletins issued by the New York Compensation Insurance Rating Board constitute the third section.

In its present form the *Payroll Audit Reference Book* is primarily concerned with subjects pertaining to workmen's compensation and employers' liability insurance. It includes rules relating to values to be charged for board and lodging and other considerations in lieu of wages and to the treatment of executive officers, with the provisions of the acts relevant to both. An outline is given of the extra-territorial scope of each state law. The subject of owners, contractors and subcontractors is covered by excerpts from the compensation acts and also from the Workmen's Compensation Digest.

It also contains tables showing the values of loss and expense constants and the procedure to be followed in applying them on cancellation of a policy. Cancellation tables are given with factors for both pro rata and short rate cancellation, which are also applicable to other types of coverage. Two tables give the average percentage of payroll and material respectively to contract price, by state groups, taken from the Census of Business for the construction industry in 1935, issued by the U. S. Department of Commerce, Bureau of the Census.

The rulings and interpretations of the New York Board and of the National Council contained in the book are similar in some respects, due to the fact that each of these organizations generally considers the adoption of the rulings promulgated by the other. These rulings pertain to such matters as auditing risks operating barges, scows and lighters, determining the governing classification of contracting risks where policies are subject to interim audits, salesmen's remuneration and the deduction of their alleged expenses and the treatment of salesmen traveling in states other than those from which they are controlled.

Some of the rules applicable in workmen's compensation insurance are also relevant to manufacturers' and contractors' public liability and property damage policies. The latter are specifically cited in connection with the rules on board and lodging and also those on executive officers. A separate short rate cancellation table for 3-year policies is also included. Since the original printing pages have been added on automobile policies, outlining the information to be obtained in auditing policies providing coverage on various bases. A special rule for including remuneration for executive officers is stressed in the rules for automobile coverage. Two special short rate cancellation tables applicable in Massachusetts and Texas, respectively, are also provided.

The system of numbering pages used in some portions of the *Reference Book* is somewhat unique and apparently will necessitate the renumbering of all pages within a particular unit whenever a new page is added to that unit. The tables of ratios of payroll and material to contract price should prove of some value but they must be used with discretion, making due allowance for sublet work and variation due to local conditions. From the same source similar tables could be obtained for the manufacturing and mercantile industries which should prove just as fruitful for purposes of comparison with results obtained in actual audits.

As a whole the *Payroll Audit Reference Book* is worth the attention of one engaged in payroll auditing. It may be anticipated that in due course additional items will be issued to amplify the book. With this book available to supplement practical audit experience and adequate training in the application of manual requirements and the art of classification, the time of unexceptionable audits may be in the offing.

A. G. Smith.

Planning and Administration oj Unemployment Compensation in the United States. Bryce M. Stewart. Industrial Relations Counselors, New York, 1938. Pp. xiii, 666.

This is the fourth and final volume of the I. R. C. series on administration of the employment service in the United States and its recently arrived and not-too-welcome little sister, unemployment insurance. Because I. R. C. has already published a very thorough study of the employment services, only those aspects that bear particularly on unemployment insurance are here included. As the title indicates the center of attention is the new member of the family.

Reviewing the greater part of a book like this is like doing a review of the dictionary or encyclopedia. Essentially it is a book to be consulted. It is most useful as a source of reference or handbook, it includes a vast deal of statistical information much of it not conveniently available elsewhere, it captures for the record a great mass of information much of it ephemeral but much nevertheless interesting, suggestive and for the seeing eye significant. Two of the 3 parts comprising 5-6 of the pages (including the lengthy appendices) are completely and utterly factual: they present briefly the legislative history and in detail the organization and administrative procedures of the two companion services, with particular reference to 5 typical states. The states in each of which competent investigators were in charge of a field study are: Wisconsin, first to pass a law and pay benefits; New York, our largest; New Hampshire, one of our smallest but one of the pioneers, California and the District of Columbia. It would be impossible to make a synthesis of Parts I and II; compare the situation if in 1912 a similar capture-and-record study had been made in 5 states on the verge of starting workmen's compensation, where moreover there was the advantage of a single government jurisdiction. No single reader or even a board could certify that all these countless facts are correct, although they doubtless are. Check-tested for the two states of which this reviewer has had first-hand knowledge the book gets A for factual precision. A measurable limitation of the value of the book is its publication before any state except Wisconsin had actually begun paying benefits.

Part III summarizes in 5 chapters the first two parts of the book, comes to conclusions and makes recommendations. To the general reader, and even to the specialist, Part III will probably be the most appealing. Its tone is critical, pros and cons are discussed, European parallels are introduced and generally a recommendation results. Here one gets some of the story behind the statutes and behind the schematic charts that show who bosses whom and other details of organization. As one would expect from the principal author, who wishes a federal system, principal adverse criticism centers on the heterogeneity of our laws and our organizations, and on the failure to make heterogeneous organizations work together more effectively. We should at once begin to coordinate if not actually to unify. (The recent creation by President Roosevelt of the Federal Security Authority is a step in this direction.) We need also a permanent plan for coordinating unemployment insurance and relief. Criticism and recommendation ranges from broad questions of policy such as these to the form and frequency of employers' reports. There are 66 pages of Appendices.

C. A. KULP.

Property-Life Insurance. Hans Heymann, Ph.D. Harper & Bros., New York, 1939. Pp. xxvii, 221.

Perhaps this reviewer expected too much of this book. At any rate he was disappointed. He had read addresses of Dr. Heymann and others praising the newly invented property-life insurance as likely to fill a long-felt need. But in the light of his experience in life and casualty insurance there seemed to be certain practical difficulties which might seriously interfere with its operation. He hoped to find in this book a careful discussion of the details of the proposal with copies of typical policy forms and plans of operation, including bases of reserves, surrender values or other methods of returning equities to withdrawing policyholders, safeguards against adverse selection in such and other matters, safeguards against moral and morale hazards, investment of funds, etc. He did not find them and his questions and doubts remain unanswered.

Instead he found, as perhaps he should have anticipated, that the book is mainly propaganda for the new form of insurance with only vague references to policy terms and conditions.

There is a eulogistic foreword by Richard T. Ely expressing the view that the form of property-life insurance and mortgage credit system proposed by Dr. Heymann may solve the national housing, shipbuilding and industrial problem. There is a preface in the same vein by Harold S. Buttenheim, Editor of *The American City*. There is a similar statement by Thomas Adams, Consultant, New York Regional Plan, and an *Introduction* by Harold A. Lyon on the theme: "The purpose of this book is to show how modern private insurance technique can be applied to assist in the vast housing and shipping programs proposed by the Federal Government." This is followed by a section, *What is Property-Life Insurance? Definition and Summary by the Author.*

In the last number of this introductory parade we are given to understand that there are actuarial tables of property wastage similar to life insurance tables. (This reviewer has seen graphs of such tables for telephone equipment and believes they could be used as the basis of a general property insurance technique, *if adverse selection and moral and morale hazard can be controlled.*) No such table is quoted but it is intimated that the technique will be based on such tables. It is intimated that the contract will provide for "all vitally important repairs," although the test of this class is not set up. There is a statement, "The permanent Surveying Service controls and determines the property's general condition, especially its state of repair" implying that periodic survey of condition is a term of the contract.

The body of the book is divided into 6 parts. Part A, *The National Housing Act* . . . contains 3 chapters: I. *The Contribution of Insurance to National Housing,* which stresses the advantage of insurance for mortgage security over amortization; II. *Property-Life Insurance, The Missing Protection Required in Mortgage Banking;* III. *A New Application of Insurance Technique to Protect Buildings against Loss through Depreciation.* Part B contains one chapter discussing the same sort of considerations with respect to ship insurance. Part C has one chapter: *Industrial Depreciation Risks and Insurance for Factories and Machinery.* Part D is entitled *Epilogue* which again eulogizes insurance and property-life insurance. "It remained the prerogative of *insurance* to furnish a solution for the problem of positive capital replacement." As will be noted later this reviewer wonders where it is so positive. Part E reproduces a lecture given by the author at the University of Pennsylvania, *The Scientific Financial*

Self-Management of Capital: Property-Life Insurance. Part F consists of 6 appendices of which the first is the text of the New York Property-Life Insurance Act of 1937, the second is the text of The Ship-Life Insurance Amendment of 1938, the fifth a draft of an act to amend the insurance law in relation to mortgage debenture companies and the others are taken up with notes by other writers on mortgage credit problems.

If this reviewer is not mistaken it is proposed to issue a contract for a fixed annual premium which will provide an inspection service, similar perhaps to that of boiler insurance (though nothing is said on how the company can force an occupant misusing a building to conduct his business so as to avoid excessive wear and tear) ; to provide funds for necessary repair (excluding, however, damage from risks covered by the present available insurances, fire, windstorm, and the like) ; and to pay the remainder of the face of the policy when the property is so depreciated by use (not obsolescence) that it cannot be reconditioned for less.

It is claimed that this will impose no more burden on the borrower than the requirement of amortization of the loan over a reasonable period of the anticipated life of the property and that this will furnish better protection to the mortgagee than a provision for amortization. It is claimed it will make the mortgage so safe as an investment as to make mortgage banking a strong addition to our financial machinery. It is implied that the protection is full. But it is admitted that obsolescence is a risk that cannot be assumed under the policy.

Is not obsolescence probably the greatest risk to property not now covered by insurance?

Of course, such a scheme would require reserves similar to life insurance reserves. Lapses probably would not be as frequent as in life insurance but it can hardly be anticipated there will be none. With the precedent of life insurance surely surrender values will be demanded. Yet this aspect has apparently not been considered.

Perhaps to the layman these criticisms may seem picayune. This review is written for actuaries whose interest in the technical aspects of the proposals is necessarily great.

A. H. MOWBRAY.

Research and Statistical Methodology Books and Reviews, 1933-1938. Oscar Krisen Buros, editor. Rutgers University Press, New Brunswick, 1938. Pp. viii, 100.

This volume states that it intends to present excerpts from reviews of "all the research and statistical methodology books and monographs published between 1933 and 1938" in the English language. This is a large order and one wonders immediately how the trick can be accomplished in 100 pages, suspecting that some rigid tests of exclusion must have been put into practice.

No such tests are specified, however, and a glance through the contents reveals that elementary and advanced economic, educational, business, computational and theoretical books find their way into the list. The reviewer casually took the review list in several issues of a prominent statistical journal and checked it against the volume under consideration.

The book is found to contain mention of a table of squares and square roots and also Davis and Nelson's *Elements of Statistics* but Davis' *Tables of Higher Mathematical Functions* failed to gain recognition. It includes Allen's *Mathematical Analysis for Economists* but does not mention Allen and Bowley's *Family Expenditure.* It includes Kelley's *Statistical Tables* but not Kelley's *Essential Traits of Mental Life.* Dublin and Lotka, *Length of Human Life* and Kuczynski's *Measurement of Population Growth* are omitted but Harry Barnes' *History of Historical Writing* is included.

It would be useless to criticize the perspicacity of the comments on each item for the collector could only select what he thought were the best of what was offered. Eleven excerpts are given for Bell's *Search for Truth,* a popular dissertation on some logical and mathematical concepts but one review suffices for Elderton and Fippard's *Construction of Mortality and Sickness Tables.* No list is furnished of the publications from which reviews have been gathered.

The book will probably be useful to a person who desires to obtain quickly an opinion on a list of books and there are in it some items which actuaries and statisticians might overlook, but unless there is a key to the mystery which the reviewer does not have it seems evident that it is not sufficiently extensive in scope, nor choice in selection, nor equitable in allocation of space.

ROBERT RIEGEL.

Tables for Calculating, by Machine, Logarithms to 13 Places of Decimals. Frederic Deprez. A. Francke, Ltd., Berne, 1939. Pp. xv, 166.

These tables differ from the usual logarithmic tables to which the student is usually introduced upon embarking on the study of trigonometry. In fact, the tables under review, published in 1939, are analogous in form to the tables incorporated in Mr. Perryman's paper which was presented at the November, 1938, meeting of the Casualty Actuarial Society.

In his paper Mr. Perryman mentioned that in making calculations of a certain type not much assistance could be had from the calculating machine because the usual tables of logarithms are not adapted to the requirements of those machines. Possibly, this statement crossed the Atlantic in record time and these tables assembled by Frederic Deprez have been issued to rectify the situation.

The volume consists of 6 tables as follows:

Table I. The numbers, to 14 places, corresponding to the 4-place mantissas .0001 to .9999, inclusive.

Table II. The numbers, to 13 places of decimals, corresponding to the logarithms (7 decimal places) 0.0000001 to 0.0000999, inclusive.

Table III. The numbers, to 13 places of decimals, corresponding to the logarithms (10 decimal places) 0.0000000001 to 0.0000000999, inclusive.

Table IV. The numbers to 13 places of decimals corresponding to the logarithms (13 decimal places) 0.0000000000001 to 0.0000000000999, inclusive.

Table V. Logarithms, to 16 places of decimals, of $(1 + i)$, for values of i at intervals of 0.0005 from $i = 0.0005$ to $i = 0.1000$.

Table VI. The values of $(1 + i)$, to 13 places of decimals, corresponding to logarithm $(1 + i)$, 5 decimal places, from logarithm $(1 + i) = 0.00001$ to logarithm $(1 + i) = 0.03350$, inclusive.

In order to simplify the writing of the tables and to facilitate their use, the author has adopted an exponential system of notation to indicate the number of zeros immediately following the decimal point. Thus, 0.0002 is written $0^{3}2$ and 1.000021780 would be written $1.0^{4}21780$.

The introduction contains a detailed explanation of the manner of using the tables in connection with calculating machines. The tables are well printed, legible and sturdily bound. They should be extremely useful to those who find occasion to make frequent calculations of values which cannot be obtained with sufficient accuracy from tables immediately at hand.

A. Z. SKELDING.

Insurance Company Examinations. Louis H. Pink. Pamphlet. Privately printed, no date. Pp. 48.

It is quite evident that the controversy over zone examinations is coming to a head one way or another, if we are to judge by the outspoken frankness and determination exhibited in Mr. Pink's study of the subject, privately printed on or about November 15, 1938. In this pamphlet the Superintendent of Insurance of the State of New York enters into a discussion of the origin of the refusal of his Department to allow companies under its jurisdiction to be examined by the departments of other states. Like his predecessors, Mr. Pink has maintained in the past and continues to maintain the attitude that the insurance laws of his state do not permit the examination of his companies by examiners of other states. He admits, however, that in the past as well as currently, the same law has been sidetracked in special cases and examiners of other states have participated in examinations of companies under the jurisdiction of the Albany authorities.

By way of a preamble to his pamphlet Mr. Pink makes a plea for understanding. He states in this preamble that the National Association of Insurance Commissioners was originally organized in New York on the motion of the Superintendent of Insurance of that state. He boasts that no state has been more loyal to the National Association or more willing to cooperate and partake fully in its meetings and its business than New York.

"The purpose of this study," Mr. Pink goes on, "is not to present one side of the picture or to stir controversy. It is rather to make a fair and impartial survey of the history of examinations, clear away some of the cobwebs which have gathered, make the position of the New York Department clear, and promote better understanding among the states."

It is hoped that a better understanding will be promoted by Mr. Pink's effort, especially in view of another statement in the beginning of his study that "sectionalism has no place in the major problems of insurance supervision. The interest of all policyholders, wherever situated, is the same."

To a casual reader this study of Mr. Pink's will leave the impression that it is not so much an analysis of the history of the controversy as a reiteration and confirmation of his principles. The voluminous files in departments of other states disclose vehement controversies between individual departments and the New York Department on various matters pertaining to the qualification of companies of other states in New York or the examinations of other companies in other states by the New York Department despite the fact that such companies had just been examined by convention examiners. Old-timers in the business of examining companies or in the service of companies operating outside the jurisdiction of New York remember many instances of the arbitrary stand taken by the Department at Albany whereby companies applying for admission in New York were made the subject of such rigid scrutiny and investigation as to make it appear as though the home state insurance department was not to be relied on. It is noted that in this pamphlet Mr. Pink continues to nurse the theory that examination of "his" companies by "his" examiners should entitle them to a free passport so far as other states are concerned. However, the New York Department will never admit the company of another state to operate in New York unless it is first examined by New York examiners. The New York Department will not accept the examination report of other states' examiners but it has insisted all along that so far as the New York companies are concerned they are properly examined if examined by New York examiners.

Mr. Pink goes into the history of the resolutions passed by the National Association of Insurance Commissioners at various times with regard to examinations of companies known as conference, convention or zone examinations. In this analysis Mr. Pink brings out certain points favorable to the New York Insurance Department's traditional attitude, not realizing perhaps that the same points or arguments rebut the attitude. All the resolutions passed by the National Association and all the arguments back and forth between commissioners and the New York Department are wound around the necessity of examining properly those companies in which more than one state is interested. The climax in this controversy was reached when Mr. Pink not so long ago made it plain that New York would not officially sponsor the adoption of the zone plan of examinations. It was stated then and it is said again in Mr. Pink's pamphlet that the law of New York is such that an examination made of a New York company by any other examiners but those employed by the state of New York is not and would not be acceptable. The laws of New York "would not permit the recognition of examinations of insurance companies not conducted by full time civil service employees of the state of New York." Existing laws, however, have been known to be changed when necessity arose, and it is certainly to be assumed that if "sectionalism has no place in the major problems of insurance supervision" somebody in New York ought to take the initiative to change the existing law as to allow recognition of the examiners of other states as authorities competent to participate in the examination of New York companies, whether under the zone plan, at the particular request of another state or for whatever other reason. A modification of the New York law would settle this perennial argument once and for all.

No plan—the convention formula or zone variety; continuation under existing unsatisfactory conditions; or the various suggestions currently in the air for consideration at the next annual convention of the National Association of Insurance Commissioners to be held in San Francisco—will work as long as the New York Department maintains this attitude or refuses to propose a change of the New York law whereby the examiners of other states, under any plan, will be acceptable to the New York Department in the examination of New York companies.

Mr. Pink, quoting extracts of statements made in various conventions of the National Association or of letters maintains "that what the New York Department opposed was wholesale examinations which could not be efficiently conducted" and ends by quoting from a statement of his made before the Hot Springs, Arkansas, meeting of the National Association on December 8, 1936 (p. 23):

> Now, we are not selfish about this; we are not opinionated; we are not trying to protect any of our companies against

> anybody else. That is the last thing we want to do. We are only trying to do a job intelligently and sensibly and, Mr. President, if it is the real desire of this Convention to reach some method of Convention examinations which will carry out the legitimate desires of these states—because you have an interest in our companies, a very great interest in our companies in New York—something that will come within our laws, within the letter of our law and within the spirit of our law, something that will be efficient and more practicable than your present resolution, we are only too glad to sit down with you and try to work it out. But you can't force us; you can't scare us; you can't drive us.

It is this reviewer's opinion that the commissioners of the other states cannot be blamed for assuming that the New York Superintendent thinks he can play with the other commissioners or even with the National Association. In one of his letters Mr. Pink gives it as his opinion "that the National Association of Insurance Commissioners is a voluntary body with no power to bind its members." (p. 21.) Now he has thrown the gauntlet: "You can't force us; you can't scare us; you can't drive us."

In his letter to Commissioner Read of Oklahoma, he concluded that: "If we cannot work together in harmony, it may be that this state should cease active participation in the association until some solution of this problem is found." It seems to this reviewer that the "harmony" referred to by Mr. Pink is the desire or the ability of the other commissioners to bear with the attitude taken by the New York Department.

One part of Mr. Pink's discussion, independent of the controversy over zone examinations, is of more concern to the insurance companies as well as to the insurance commissioners than the main question. That is the matter of the cost of such examinations. The majority of state examiners, after leaving the confines of their home state with a commission to examine a company in some other state, have adopted the plan of charging almost uniform rates as follows: $25 per day for senior examiners and $15 for junior examiners, plus per diem expenses of $8 in all parts of the United States except in the city of New York, where customarily the examiners charge $10 for daily expenses. It would not require much calculation to arrive at the approximate cost of an examination of a large company in New York, where 5 or 6 examiners from other states and about as many from the home state undertake to conduct an examination which may last 6 or 8 months. The cost is almost prohibitive. Mr. Pink makes comparison of the cost to his companies of examinations where representatives of other states participate as against the cost to the same companies at the scale of charges made for the services of New York examiners. He cites the exact cost of examinations conducted exclusively by New York examiners, giving the number of days and examiners employed and the total cost of each examination. If there is nothing wrong with the figures cited it appears that the New York examiners are considerably underpaid. For instance, a review of the figures mentioned by Mr. Pink on page 33 furnishes the information that the highest charge per day, per examiner, developed by the examinations cited, was $9.51 and the lowest $1.42. For example, the American Surety Company was examined by 14 men in 138½ days at a cost of $12,659.96. This would average a cost per day per man of $6.53. An examination of the City of New York Insurance Company was completed in 53½ days by 10 examiners at a cost of $1,176.57. This averages $2.20 per day per man. The Eagle Indemnity Company was examined by 17 men in 86½ days at a cost of $2,096.94. The average cost per day per man was $1.42. There seems to be something missing in the figures quoted by Mr. Pink although he appears to be pretty accurate in calculating the cost of examinations made by representatives of other states in New York, when such examinations of course were based on a fixed examination fee per day, plus per diem living expenses and traveling expenses.

Regardless of what has been said in the pamphlet and the comments by this reviewer, there is an implied underlying desire for a way out. On page 39 Mr. Pink, while admitting that apparently the commissioners are no further along than they were before the Quebec meeting, had this to say:

> New York is not opposed to convention examinations. It is opposed only to convention examinations of companies as a routine matter where there is no particular reason for them. We are in complete accord with the by-laws which provide that a convention examination may be called with the consent of the commissioner of the company's home state, or, if that consent is refused, when the Committee satisfies itself that the best interests of insurance supervision will be served by it. In other words, if a company is in doubtful financial condition or if there is any other legitimate reason why a conven-

> tion examination should be held, we quite agree that the association should have the power to compel an examination by states other than the state of domicile exclusively.
>
> Most examinations are made in regular course and it is seldom that there is any serious question of the solvency or management practices of a company. Where there is such a question expense is of no moment whatsoever. The best judgment possible is required and all states have an interest, and a duty as well, to see to it that the problem is met in the best possible way. The method prescribed by the by-laws is not only sound and reasonable but has been the general rule of the National Association for approximately 95 per cent of the time since its organization in 1871.

In the same vein, Mr. Pink continues that:

> The advantages of the convention examinations are that they theoretically at least, give the home state the benefit of expert advice from many other states and give other states direct access to the original information with regard to the company. The disadvantages are that there is at the present time no efficient machinery to organize and supervise convention examinations of hundreds of companies by various states or zones; that it greatly increases the cost; that it brings in new people not accustomed to work in connection with the examining force of the home state and is to some extent destructive of team work; and that it spreads responsibility among a number of states who can ill afford to take it when they are only represented by one man, who usually is assigned to and is familiar with only a portion of the company's affairs.

In Mr. Pink's last utterance he assigns a plausible explanation to any one of the numerous actions and mental attitudes of the officials of New York, for which the real though undoubtedly unconscious motive was so long coming forth. Should all or the majority of the commissioners fall in line in the same rationalizing mood the convention in San Francisco may be the last which will be seriously occupied with the perplexing yet simple matter of zone examinations.

There is one thing which Mr. Pink has not discussed in his pamphlet: the fact that zone examinations are less expensive than conference or convention examinations used to be. Only one examiner from every zone invited to participate in an examination is required—and in the great majority of cases all of the zones are not interested in the same examination—where in the past we have seen as many as 18 or 20 examiners represent as many states in one convention examination. And with zone rules strictly observed, no state may invite itself into an examination except through the zone chairman.

H. Economidy.

PUBLICATIONS RECEIVED

California Insurance Quiz. Jack Piver. Pacific Insurance Magazine, San Francisco, 1939. Pamphlet. Pp. 56.

Economic Aspects of Medical Services. Paul A. Dodd and E. F. Penrose. Graphic Arts Press, Washington, 1939. Pp. xxii, 499.

History of Various State Insurance Experiments. Second edition. Percy F. Garnett. Committee on Public Relations, Board of Fire Underwriters of the Pacific, San Francisco, no date. Pamphlet. Pp. 83.

Law's Statistical Tables. Fire and Marine Insurance Companies for 1939. Harrison Law. Published by author, Nutley, N. J., 1939. Pp. not numbered.

Life Insurance. Fifth edition. Joseph B. Maclean. McGraw-Hill Book Company, New York, 1939. Pp. xii, 668.

Manufacturer and Insurance. Laurence S. Myers. National Underwriter Company, Cincinnati, 1939. Pp. x, 273.

Sources and Extent of the Liability of the Public Accountant. William R. MacMillan. American Surety Company, New York, no date. Pamphlet. Pp. 27.

Reviews of the following publications appear in the current numbers of the *Transactions* of the Actuarial Society of America and the *Review* of the American Institute of Actuaries.

Pearson, E. S. *Karl Pearson: An Appreciation of Some Aspects of His Life and Work.* London: Cambridge University Press, 1938. Pp. 170.

Impairment Study, 1938. Compiled and published by the Actuarial Society of America and the Association of Life Insurance Medical Directors. New York, January, 1939. Pp. 43.

Horne, Harold M., and Mansfield, D. Bruce. *The Life Insurance Contract.* New York: Life Office Management Assn., 1938. Pp. x + 270.

Magee, John H. *Life Insurance.* Chicago: Business Publications, Inc., 1939. Pp. xv + 729.

CURRENT NOTES

THOMAS O. CARLSON, CURRENT NOTES EDITOR

AUTOMOBILE

Private Passenger Automobile Rating Plan

By far the most important development in the automobile business in the past 6 months was the general introduction by members of the National Bureau of Casualty and Surety Underwriters of the Private Passenger Automobile Rating Plan. This plan introduces the principle of differentials in rates according to the use of a car, a principle which has been applied in various plans by individual carriers for some years but which has not previously been introduced by a large group of carriers. Private passenger cars are divided into four classes for rating purposes as follows:

> CLASS A—Cars, use of which is not required by the duties of the named insured except in going to and from the principal place of business; includes cars owned by farmers or clergymen. The rate for this class is manual less 20%.
>
> CLASS A-1—Cars qualifying for Class A, provided the insured signs an application indicating that his mileage for the past year and his estimated mileage for the coming year are neither in excess of 7,500 miles and that there are not more than two operators for such automobile in the insured's household, neither of whom is under 25 years of age. The rate for this class is manual less 25%.
>
> CLASS B—Manual rates are charged all cars not included in Classes A, A-1 or C.
>
> CLASS C—Cars owned by an insured required to file evidence of financial responsibility. The rate is in accordance with the manual rule covering risks certified under Financial Responsibility Laws.

The statistical basis for the principal differential, that between cars used in business purposes and cars not so used, was the tabulation of a special call which indicated that the non-business-use cars developed a loss cost more than 20% below that developed by cars used in business.

The Safe Driver Reward Plan (See *Current Notes*, Volume XXIV) is superimposed upon the rate determined under the new Private Passenger Rating Plan, where both are in effect. The Safe Driver Reward Plan is effective in all but 15 states, the Private Passenger Automobile Rating Plan in all except 9 states.

Drive Other Car Coverage

In April, a great majority of the carriers operating throughout the country extended, without additional premium, the coverage provided under policies covering private passenger automobiles owned by individuals so as to include application to the named insured and to the wife or husband of the named insured when driving cars other than the car specified in the policy. This extension of coverage also provides insurance for the occasional operation of hired automobiles and non-ownership liability coverage for the operation of other automobiles by the private chauffeur or domestic servant of the named insured. Provision is made for extension of this "Drive Other Car" coverage to other relatives of the insured residing in his household at small additional premium charges. This coverage is now effective in all states except Massachusetts and Texas.

Revision of Standard Policy Provisions

The first revision of the standard policy provisions adopted by the two major ratemaking organizations four years ago, has been made, the following constituting important extensions of coverage without additional charge:

1. *Territorial Extension*
   Coverage which prevoiusly was effective only in the continental United States (excluding Alaska), Canada, or on a "coastwise" vessel, has now been extended to be effective in all United States possessions, in Newfoundland, and on a vessel between ports within this broad territory.
2. *Trailers Coverage*
   The policy has been extended to afford automatically coverage on trailers, other than a trailer home, while used exclusively for personal, pleasure, or family purposes, other than business purposes, with a private passenger automobile classified as "pleasure and business."

3. *Commercial Use*

   The definition of "commercial" has been broadened to permit the occasional use of an insured commercial car "for personal, pleasure, family, and other business purposes," without additional charge. Previously the coverage applied only while the car was used in direct connection with the insured's business or business occupation. This revision not only permits use of the insured commercial car for family and pleasure purposes, but also for occasional business use outside of the insured's own business.

Financial Responsibility

Financial Responsibility laws have been newly made effective on May 2 in Idaho, on June 7 in Washington, and on June 30 in Kansas. In Kansas and Washington provision is made for voluntary filing of financial responsibility certificates in order to prevent possible suspension of license. Financial Responsibility laws are now effective in thirty-four states and the District of Columbia.

BURGLARY

Residence Policy Innovations

Probably the most important development in the burglary lines during the past 6 months is the general introduction of the writing of 100% Blanket and Personal Hold-Up policies for amounts of insurance less than $1,000. The charge for these policies is obtained by pro rata application of the premium for $1,000 of insurance. The minimum premium is for a $500 policy. This provision is not effective in the State of New York. Provision is made for adjustment of the sub-limits on 100% blanket policies and on personal hold-up insurance.

Another important innovation is the introduction of an endorsement extending the residence policy to cover all loss of and damage (except by fire) to personal property occasioned by burglary, robbery, theft, larceny, vandalism or malicious mischief, occurring outside the premises but within the United States or Canada. This endorsement provides only for extension of the basic policy, and does not increase the total amount of insurance under the policy, but the basic policy may be so extended with respect either to a portion or to all of its coverage.

Other Policy Innovations

An all risk policy covering securities deposited for safe keeping with a bank or trust company has been developed, analogous to the all risk policy covering securities deposited with a public official which was reviewed in No. 51 of the *Proceedings.*

An accounts receivable policy has been introduced covering the direct loss resulting from the assured's liability to collect money due the assured from his customers provided such inability is directly due to destruction of or damage to the assured's records of accounts receivable while in the assured's premises. The rates are based upon the Board rates for 100% co-insurance fire contents for that portion of the building in which the accounts receivable are usually kept.

Rate Revisions

The rate tables for residence burglary, robbery, theft and larceny insurance outside of New York State have been completely revised, the rates for additional amounts of insurance above $1,000 being substantially reduced. This revision was carried out along the lines followed in developing the revision in New York State in 1938, as reported in previous Notes.

Experience Rating

An adaptation of the Public Liability Experience Rating Plan has been developed for application to liability lines ordinarily included under the jurisdiction of burglary departments. These lines include at the present time Innkeepers' Liability, Safe Depository Liability, and Warehousemen's Liability. The eligibility requirements and most of the general rules in the Burglary Experience Rating Plan were retained. The experience period was extended to 5 years, and the loss split features of the Public Liability Experience Rating Plan introduced.

Liability Other Than Automobile

Employers' Liability and Voluntary Compensation

A general revision of the Employers' Liability and Voluntary Compensation rates for the states of Oregon and Washington was made effective in December, 1938. This revision is worthy of note inasmuch as it was based upon the first compilation of classification experience that has been obtained for these coverages in the two states. Although the experience indications in Washington and Oregon were followed to the greatest possible extent, a great majority of the rates, by reason of the sparseness of experience, were determined by basing their relationship to each other on the relativity indicated by the existing workmen's compensation rates in the State of California.

Owners', Landlords' and Tenants' Liability—Manual Revision

On May 15 a new Owners', Landlords' and Tenants' Liability Manual was issued. This represents a combination of the Owners', Landlords' and Tenants' and the Residence, Private Estates and Farms sections of the Liability Manual, but the new manual for these combined sections is complete in itself. Many changes in the manual rules have been introduced, the most important of which are as follows:

> The classifications for Apartments occupied by a single tenant, and for Residence, Estate, Farm and Personal Liability, have all been extended to include coverage for certain garages and stables not previously included under the policy, individual or family cemetery plots or burial vaults, and the construction of additional buildings and structural alteration of, additions to or demolition of existing buildings included under the classification, provided that such work is performed on the insured premises and does not change the identity of such premises as respects the occupancy contemplated by the classification.
>
> Additional extensions have been made in the Personal Liability classification.
>
> Public and parochial schools were previously included under a single classification rated on an area and frontage basis. This classification has now been divided into three parts, (1) public elementary, kindergarten or junior high schools, (2) public high schools—N.O.C., and (3) parochial schools. The revised rates are on a per pupil basis. This basis of rating had been previously experimented with in a few states.

The statistical procedure with regard to the Owners', Landlords' and Tenants' classifications written on an area and frontage basis in the past has been greatly simplified by the elimination of the frontage basis of exposure on all but a few classifications. The area and frontage basis was retained on certain classifications in which great variations in the heights of buildings may occur, making it unfeasible to establish an average rate for such buildings on the area basis of exposure alone.

Manual rates for all classifications were revised countrywide, the effect of the changes being a small increase for the public liability coverage and a very substantial reduction for the property damage liability coverage. The excess limits tables were reduced, the estimated effect of the change on the excess limits premiums being a reduction of between 20% and 25%. The same excess limits reductions were extended to owners' and contractors' protective risks.

Several new rating territories were established where the volume of business and other conditions warranted rate differentials. The total number of rate schedules in the country was increased to sixty-seven.

Grantors' Protective Liability

In response to the demand on the part of property owners for liability protection with respect to accidents which may occur after the sale of property, as a result of the decision in the case of Pharm *vs.* Lituchy handed down by the City Court of Bronx County, New York, on February 8, 1939, a new form of coverage has been developed, known as Grantors' Protective Liability Insurance. This insurance provides bodily injury liability coverage with respect to premises to which the insured has relinquished title during the policy period or prior thereto, but only as to accidents occurring within the policy period on and after the effective date of the coverage. This coverage will probably be provided in the majority of instances by an endorsement of Owners', Landlords' and Tenants' and Elevator Liability policies. Separate policy minimum premiums will apply if the coverage is written under a separate policy.

Workmen's Compensation

New York Rate Revision

Two modifications worthy of particular mention were introduced in the New York rate-making procedure in connection with the rate revision which became effective on July 1, both modifications being in connection with the determination of the contingency loading. Recognition was given to the effect of interest earnings on the calendar year results from which the contingency factor is determined; this effect is much greater in the New York experience than elsewhere in the country because of the statutory provisions in New York governing the establishment of the reserves on outstanding losses. Special interest reserves included by certain carriers in the Casualty Experience Exhibit were eliminated from the calculation of the contingency factor; and the loss experience of each calendar year entering into the determination of that factor has been adjusted to reflect the effect of interest discount for claims occurring in policy years developed beyond 60 months in that calendar year, the reserves for which have been based upon tabular values. The latter modification has the effect of eliminating the accretions due to interest earnings which are reflected in the periodic revaluation of such cases subsequent to the 60-month period allowed for developments.

A study was made which demonstrated that the earlier introduction of these modifications would not have changed the contingency loading of 5.0 points which has been included in the New York rate revisions since the original introduction of the contingency loading in the 1934 revision. The effect of the modifications in the current revision, however, was to eliminate the entire contingency loading of 5.0 points. A further modification was introduced providing that the contingency factor may not be changed more than 2.5 points in any one revision, so that the actual reduction in this factor in the current revision was from 5.0 points to 2.5 points.

WORKMEN'S COMPENSATION

Arkansas Legislation

The Workmen's Compensation Act which had been signed by the Governor to become effective in July in the State of Arkansas was withdrawn on the presentation of a petition bearing the requisite number of voters' signatures. The Governor has not yet announced whether or not he will take steps to have this matter considered further before the next general election which is due in the fall of 1940.

Personal Notes

Clarence S. Coates has been appointed an Assistant Secretary of the (American) Lumbermens Mutual Casualty Company.

John H. Miller has been made Vice-President and Actuary of the Monarch Life Insurance Company.

A. Duncan Reid, President of the Globe Indemnity Company, retired as of March 31, 1939.

Harry V. Williams is now associated with the Hartford Accident & Indemnity Company at Hartford, Connecticut.

LEGAL NOTES

BY
SAUL B. ACKERMAN
(OF THE NEW YORK BAR)

ACCIDENT INSURANCE

[Ransdell *vs.* North American Accident Ins. Co., 122 S. W. 2nd, 114.]

The defendant issued a policy covering indemnity due to accidental injury sustained as follows: (a) By the wrecking of a private automobile of the exclusively pleasure type, that is, lawfully registered and licensed, in which the insured is riding or driving, provided that the insured is not operating such automobile while carrying passengers for hire or transporting merchandise for business purpose; or (b) By being struck, knocked down or run over while walking or standing on a public highway by a moving vehicle propelled by steam, cable, electricity, naphtha, gasoline, compressed air, or liquid power, (excluding injuries sustained while working on a public highway or railroad right-of-way and also excluding injuries sustained while on a railroad right-of-way except an established crossing; or (c) By the wrecking of a taxicab, jitney, public automobile or automobile stage, which is being driven or operated at the time of such wrecking by a licensed driver plying for public hire, and in which the insured is traveling as a fare-paying passenger.

The insured lost his life due to accidental drowning while bathing in a river. The insurance was payable to the wife of the insured, who commenced an action on the policy. One of the exceptions of the policy provided that the company was not liable for injuries fatal or non-fatal, of which there shall be no visible contusion, wound or other marks or evidence of injury on the exterior of the body at the place of injury (accidental drowning excepted), the body itself in case of death not to be deemed such; or death disability or loss resulting directly or indirectly from injury sustained.

The plaintiff contended that in view of the exception in the policy, that is, since the words "accidental drowning excepted" are used, that the company was responsible. The court held that it is also a well-settled rule in this as well as in most other jurisdictions that a policy of accident insurance is to be liberally construed as against the insured although strictly construed against the insurer, and also where there is any ambiguity in the policy, the rule is that all provisions, conditions or exceptions which in any way tend to work a forfeiture of the policy, or limit or defeat liability thereunder, should be construed more strongly against those for whose benefit they are asserted, and more favorably toward those against whom they are meant to operate, and the court should adopt the construction most favorable to the insured when a doubt arises in respect to exceptions to or limitations of liability or clauses creating a forfeiture.

The policy throughout upon its face calls attention plainly to the fact that it pays limited indemnity under varying conditions clearly specified so that the average reader should have no difficulty in arriving at its meaning if read with the ordinary care which the law requires. It is a manifest rule that where the policy provides for indemnity for a loss which is the result of an injury sustained in a specified manner the accident must have occurred within the stipulation in order to recover. There is no ambiguity on the contract relied upon and since there is no provision in the policy imposing liability on the defendant company for the death of the deceased as a result of accidental drowning, the company is not liable.

Automobile Insurance

[Ocean Accident & Guarantee Corporation *vs.* Myers, 22 Fed. Supp. 450.]

A casualty insurance company issued a policy covering a large number of automobiles which were being transported from Akron, Ohio, to Miami, Florida. The policy provided protection for the cars during their movement between the two points designated. The type of insurance carried was designated as upon a car for pleasure. The policy provided that the company was not liable: "while any private passenger or commercial motor vehicle covered herein is being used for rental or livery purposes or in the carrying of persons for a consideration unless as respects each class of motor vehicles respectively, such use is specified in the declarations and proper premiums therein set forth."

The insured employed a chauffeur to drive the car from Akron to Miami and agreed to pay the sum of $5 for the service. The chauffeur made an agreement with two of her friends to pool expenses for the cost of the trip. At Cincinnati, Ohio, the chauffeur agreed to carry three people from Cincinnati to Miami and the chauffeur left the charge that she would receive to the persons who were carried. The charge was $10 per person. While traveling to Miami, Florida, the car collided with another car and injured three persons. The insurance company after investigating the accident disclaimed liability on the ground that the policy specifically excluded any insurance when persons were being carried for a consideration. The owners of the car became insolvent and the insurance company agreed to enter on the defence of the suit provided the insured would execute a non-waiver agreement. In this suit judgment was obtained against the insured and suit was now commenced against the insurance company.

The court held the arrangement between the chauffeur and her comrades in Akron, Ohio, where the three girls desirous of making the trip together to Miami, Florida made up a common fund for the purpose of defraying expenses and with no idea of making any compensation by one to the other is typical of that class of cases where it is held that such transportation does not violate the policy or come within the exclusion clause. However, when she accepted three strangers at Cincinnati whom she did not know and each of them paid her $10 for transportation to Miami, Florida, it would take a very technical construction to hold that they did not constitute carrying of persons in the automobile for compensation within the meaning of the exclusion clause.

It is immaterial that the owners of the car did not give the chauffeur permission to transport the passengers. The exclusion clause applies to the use that is being made of the car at the time of the accident, and it does not depend upon the question of "the unauthorized use" made by the insured's agent. The wording of the policy involved here is plain and unambiguous. It expressly provides that the policy excludes any coverage while the vehicle is being used for rental or livery purposes, or the carrying of persons for a consideration. Therefore the company is not liable.

It is contended that the insurance company waived its rights by defending a suit which was brought against the insured. The court held, however, that the insurance company steadfastly refused to participate in the matter unless and until it obtained a contract which purported to have been executed under the direction of the president of the company, and whether that authority was properly granted or not the company did not enter upon the defense of the case under any circumstances indicating an intention on its part to waive its position that its policy of insurance did not cover the loss.

Burglary

[Swanson, Inc., *vs.* Central Surety & Ins. Corporation, 121 S. W. 2nd 783.]

Plaintiff conducted a store and handled ladies' ready to wear, sports wear, millinery and novelties. The store did not open for business until 9 a. m. About 6 a. m. October 17, 1933, the store porter, went, as had been his custom, to the store to clean up and get things ready for the opening of the store by 9 a. m. At the front of the store were double doors that opened into a vestibule, and from the vestibule double swinging doors opened into the store. The front doors, facing east, were locked with three locks. The porter unlocked the front doors (which unlocking released one of them) and entered, intending to close the released door which, when closed from the inside, would lock with the other locks. But before the porter got the door closed, a man ran up and stuck his foot in the opening and threw his shoulder against the released door. This man had a pistol in his hand, and both he and the porter pushed on the door. The porter from the inside was trying to close the door and the man from the outside was trying to enter. The man "put the pistol on" the porter and told him "to stick 'em up" and he did so. Then a second man entered, and shortly a third. One of the men guarded the porter and the other two carried out, at the back door, to the alley merchandise of the value of $17,495.50.

The policy provided as follows: "To indemnify the assured for all loss by burglary, of merchandise, furniture, fixtures and equipment, from within the assured's premises as hereinafter defined, occasioned by any person or persons making felonious entry into such premises by actual force and violence when such premises are not open for business of which force and violence there shall be visible marks made upon such premises at the place of such entry by tools, explosives, electricity or chemicals. . . ."

The company contended that the visible marks requirement is a limitation on liability, and that the evidence does not show that there were visible marks made at the place of entry by tools, etc. The insured contended that the visible marks requirement is not a limitation on liability, but is an attempt to limit and determine the character of evidence to show liability. In addition the controverted provision is ambiguous, and therefore invoked the rule that where such is the case the policy will be construed most favorably to the insured.

The court held that the visible marks requirement in the policy was intended to be and is a limitation on liability, and the provision is not ambiguous. It may be a trick provision, but as has been said many times in the absence of ambiguity, there is no room for the rule that insurance contracts will be construed most favorably to the insured.

Compensation

[Maryland Casualty Co. *vs.* American Lumber and Wrecking Co., Inc., 282 N. W. 806.]

Suit by the Maryland Casualty Company against the defendant employer, to recover reimbursement under the provisions of a rider on a workmen's compensation and employers' liability policy issued by plaintiff to defendant.

The rider stated "Should the Company be required by law to make any payment or payments under the terms of this policy as a result of injuries and/or death of any employee engaged in such operations at locations not specifically stated in the policy contract or endorsements attached thereto, it is agreed that this endorsement shall constitute a specific and separate agreement between the Company and the Assured, under which the Assured will immediately reimburse the Company in full for any such expenditure . . ."

On August 5, 1934, while the policy and the rider mentioned were in full force and effect, defendant undertook the wrecking of a structure. On August 9 and during the progress of this work two of its employees suffered accidental injuries which under the Compensation Act gave them the right to receive hospitalization, medical services and compensation. Plaintiff duly paid these items, in all amounting to $873.62. It demanded reimbursement from defendant because defendant had failed and neglected to comply with the provisions of the rider which provided for giving plaintiff notice of the location of the work, its size, extent and its estimated pay roll. Plaintiff was not informed of this job until August 13. Plaintiff collected no premium on the pay roll involved in this particular work between August 5 and August 14.

Defendant's principal contention is that the reimbursement rider violated the state statute which provides that the designated insurer shall "issue a policy containing the usual and customary provisions found in such policies." The employer claimed that the terms of the rider are neither usual nor customary in workmen's compensation policies and therefore are not binding upon it.

The court held that since there is no statutory form of workmen's compensation policy in this state, the employer and insurer may insert unusual provisions in the contract insofar as their own relations are concerned unless this statute operates as a barrier.

Under the statute, it is not within the power of the employer and insurer to enter into a policy contract which prevents the employee from enjoying the full protection of a policy containing the "usual and customary provisions found in such policies." But it does not follow that the statute prevents the employer and insurer from governing their respective rights and duties by agreement. It does not prohibit them, as between themselves, from determining on whom ultimate financial responsibility will rest in certain situations as long as that stipulation does not abridge or impair the protection thrown around the employee by the statute. The reimbursement rider here involved does not encounter that objection. The employee must be, and in this case was, accorded the full benefit bestowed by law regardless of the terms of the rider governing ultimate liability as between the employer and his insurer in certain situations. Consequently the reimbursement rider is a valid and effective agreement between the parties thereto.

ELEVATOR LIABILITY

[United States Fidelity & Guarantee Co. *vs.* Yose, 183 S. 260.]

On May 14, 1931, Robert L. Payne was a member of a flying squadron in the service of the United States Government, and his squadron was spending the night at Nashville. While being transported upward from one floor to another at the Noel Hotel in an elevator operated by Gaines Ensley, Payne was thrown or fell to the floor due to a sudden jerk of the elevator, and its inner door being open, his head was caught between the floor of the elevator and the beam at the rise of the next floor, resulting in the instant death of Sergeant Payne.

Prior to that time the insurer had insured its policy of indemnity to the insured providing for a coverage of a minimum of $50,000 and a maximum of $200,000. The provision on which the defense of this action is based is Condition "A" thereof, which is in these words: "This policy does not cover loss from liability for, or any suit based on, injury and/or death (1) Caused by any elevator while in charge of any person under the age fixed by law for elevator attendants, or if there is no legal age limit, under the age of sixteen (16) years. . . ."

Immediately after the death of Payne, on the same night, the insured notified the general agents of the insurer, and they, in turn, notified its agent and the adjuster, who began an investigation thereof, and, among other things, took a written statement from Gaines Ensley, showing that, at the time of the accident, he was 19 years old, and born on April 10, 1912. The insurer's adjuster relied upon his own investigation; made a report promptly to the insurer, and the management of the suit was immediately turned over to the attorneys who represented the insurer in that vicinity. These attorneys likewise made an independent investigation, but made no further effort to ascertain the age of Ensley, relying solely on his own statement made to the adjuster as to his age. The insured made no representations whatever as to the age of Ensley, but the adjuster saw his application to the hotel for employment, showing his age to be as stated to the adjuster.

The administrator of the estate of Robert L. Payne caused summons to be served on the insured on November 25, 1931, and filed his declaration seeking damages for Payne's death against the insured on January 5, 1932. The attorneys for the insurer took control of the litigation, and retained it until the termination of the trial in September, 1932, when the attorneys representing the insurer, having charge for the insured, placed Gaines Ensley on the witness stand, and, for the first time, it was ascertained that he was born on April 10, 1914, and at the time of the accident, was a little over the age of 17 and under 18. Ensley was well developed and no one suspected, from a physical view of him, that he was under 18 years of age when the tragedy occurred. Thereupon, the attorneys for the insurer sent the adjuster to the Vital Statistics Bureau, a few blocks from the courthouse, to ascertain from the records that Ensley was not 18 years of age on May 14, 1931. His mother also testified that he was born April 10, 1914. This public record was easily available, and Ensley's father and mother, and the attending physician at his birth, were at Waverly, Tennessee, within a few hours' drive from Nashville.

On the trial of the case at bar, one of the attorneys for the insurer, who conducted the case on the first trial, testified that, from talks with Gaines Ensley, they found they could not rely upon his statements. The attorney made this statement in giving his explanation as to why he had the record in the Bureau of Vital Statistics examined before the attorneys withdrew from the case. This record discloses that neither the insured, nor the insurer, actually knew anything about Ensley's age except his statement before the trial. In this case there was introduced the public record of the Vital Statistics Bureau showing his age. The record of the first trial was also introduced in evidence in this case, as well as the ordinances of the City of Nashville, which made it unlawful for a person under 18 years of age to be employed in the operation of elevators, or to operate them.

No question was ever raised between the insurer and the insured as to the nonage of Ensley until September 26, 1932. No investigation whatever was conducted by the insurer relative to the age of Ensley until after he delivered his testimony in court. An hour's investigation before the insurer took charge of the case would have revealed the nonage of Ensley. In other words, the insurer rested content upon Ensley's bare statement as to his age.

The court held, under the facts of this case, that the insurer waived its right to claim exemption because of anything in Condition "A" of the policy hereinabove set forth. Tersely stated, the insurance company conducted the litigation, having taken charge immediately after the injury, and retained exclusive control thereof, without reservation, from about May 14, 1931, to September 26, 1932; made its own investigation; was not induced by the insured, by word or deed, not to prosecute the investigation to a final conclusion, if it desired to plead exemption on account of the nonage of Ensley.

The court held that the conduct of the insurer in this case waived Condition "A" of the contract. If the insurer desired to avail itself of Condition "A" the facts were easily obtainable by the exercise of due investigation. The insured made no representation to the insurer which caused it to take exclusive charge of the litigation and retain it for fifteen months.

"In the case at bar it is not contended that the insured, by word or deed, induced the insurer to take its position as to its liability for the death of Payne. It took its position from its own investigation, from which it learned that Ensley's statements could not be relied on, and the evidence of his true age was easily accessible, and, really, the insurer made no investigation on that point until Ensley testified on the trial. With a little diligence, and within an hour's time, the insurer could have obtained the facts from a public record."

FIDELITY

[Handelman's Chain Stores *vs.* Maryland Casualty Co., 184 S. 827.]

Handelman's Chain Stores, a commercial partnership, during 1933-1935, operated a retail store in the town of Thibodaux, Louisiana. It appears that in June, 1933, Preston J. Field was appointed general manager of the store and was required to furnish a fidelity bond in the sum of $1,000. The defendant had previously executed many other such bonds for employees of the employer and—apparently at the request of the employer—it agreed to execute the bond required by the employer and applied for by the employee, Field. In accordance with its custom it sent the employer a printed form on which there were many questions concerning the duties of Field and the methods which would be resorted to by the employer in keeping itself advised concerning the conduct of the affairs entrusted to him. When these questions were answered by the employer, the bond was issued under date of June 13, 1933. Renewal premiums have been paid regularly since and it is conceded that, at the time of the alleged shortage which forms the basis of this suit, the bond was in full force and effect.

On the morning of Monday, December 23, 1935, Field, the bonded employee, reported by telephone from Thibodaux to the employer in New Orleans that the store had been robbed between the closing on the preceding Saturday night and the opening on that Monday morning. A subsequent check showed a shortage of $268.44 in cash and of $2,065.73 on merchandise. But the employer reached the conclusion that there had been no robbery and that the bonded employee, Field, by fraudulent means, has for some time been retaining cash received from customers for goods sold and failing to report the sales, and also had taken cash from the cash register and had reported the alleged robbery in order to hide his own peculations. Thereupon demand was made on the surety company for settlement under the bond, but that company, maintaining that the employer had breached certain warranties made when the bond was issued and that an earlier default of the same employee had not been reported refused to make payment.

No warranties were contained in the bond itself, but in it there appeared a stipulation to the effect "that all statements which the employer has furnished to the Company concerning the employee or his duties or accounts are warranted by the employer to be true: . . ."

The particular obligations which were assumed by the employer in the statement made in connection with the application for the bond and which obligations, it is contended have been breached, were:

(1) That at least once in every three months inventory of stock goods and samples would be made by special representatives.

(2) That at least once in every thirty days the applicant's books, accounts and securities would be inspected and audited by special representatives.

It is argued that such breach as there may have been was not of one of those obligations which were sufficiently referred to in the bond as warranties to permit that it be held that a breach thereof should defeat recovery.

The Court held that it has been determined in this state that a promise made in connection with an application for such a bond is not to be considered as a warranty the breach of which would defeat recovery unless such promise is stated to be a warranty and unless, if made in some other document than the bond itself, it is carried over into the bond by language which shows a definite intention to make it a part of the bond.

The court held that in the statement made by the employer there were certain promises. It was agreed that certain periodical audits would be made and that at regular stated intervals, inventories would be taken. But it was likewise agreed that these things would be done by special representatives and nowhere in the bond itself is reference made to those things which were to be done by others than the bonded employee himself. The only reference in the bond to promises of the employer is to those things which the employee was to do, or concerning his accounts. The record shows that the bonded employee kept no accounts and, therefore, it cannot be and has not been shown that there was any breach of any provision made concerning those accounts. In fact, the only breach actually shown was of the promise to take an inventory once every three months by a special representative and to inspect and audit the books, accounts, stock and securities once in every thirty days. But these things were to be done not by the employee, but by special representatives of the employer, and nowhere in the bond is it stipulated that those promises were to be considered as warranties made in connection with the issuance of the bond.

The words used in the reference in the bond in the case limited the warranties contained in the employer's statement to those promises which concerned the employee, his duties and accounts, and did not include those promises which concerned other things to be done by the employer or by special representatives. Consequently, whatever the employer may, in the statement, have undertaken, those undertakings were not by proper reference in the bond made warranties the breach of which should defeat recovery.

There is another contention that there should be no recovery because the employer failed to report to the surety company an earlier loss allegedly caused by the peculation of the same bonded employee. The evidence as to that loss, however, shows that it was of a minor amount and that the employer at that time took the position that it was within the usual limits of losses resulting from shoplifting and that there was no substantial evidence on which could have been based a charge that the bonded employee was guilty. The amount of that shortage was $66.36 and the employer showed that this was well within the usual 1% loss due to shoplifting, errors and honest mistakes. The failure to report such a loss should not defeat recovery for a loss later sustained.

Liability Insurance

[Floralbell Amusement Corporation *vs.* Standard Surety & Casualty Co. of New York, 9 N. Y. S. 2d 524.]

A liability policy was issued by the defendant company to the plaintiff, the owner of a theatre at Floral Park, New York. Pursuant to the provisions of the policy, the defendant undertook; among other things: "To defend in the name and on behalf of the assured all claims, or suits against the assured, except those hereinafter excluded, even if groundless, false or fraudulent, to recover damages arising or resulting from bodily injuries and/or death accidentally suffered or alleged to have been so suffered, within the policy period by any person or persons, except those employed by the assured or those to whom the assured may be held liable under any Workmen's Compensation Law, agreement, or plan."

On May 9, 1931, the plaintiff had in its employ one David Murphy, who managed plaintiff's theatre. On that date one Richard Dill, an infant, sustained accidental bodily injuries at or about the theatre as a result of an alleged assault upon him by Murphy, who was the alleged aggressor. Charges were preferred against Murphy by Dill in the Magistrate's Court. In May, 1931, Murphy was convicted of assault in the third degree. The alleged assault was in nowise and at no time authorized, consented to, participated in or ratified by the plaintiff, or any officer, director or stockholder thereof.

Plaintiff orally notified the defendant of the occurrence of the accident and of its nature and the defendant then and there disclaimed any liability under the policy and informed the plaintiff that it would not defend any claim or any suit which might arise as a result of the accident, solely and only on the ground that the accident was based upon an assault, and that therefore the said accident was not covered by or included within the terms of the policy.

In July, 1931, Richard Dill, by his guardian ad litem, commenced an action against plaintiff for damages. The plaintiff appeared by its attorneys since the defendant herein disclaimed any liability. The action was tried during September, 1935, before a court and jury. A verdict was rendered in favor of the present plaintiff, Floralbell Amusement Corporation. It is stipulated that the value of the services and the amount of disbursements incurred by plaintiff in connection with the defense of the action amounted to the sum of $1,750.

The plaintiff contended that the policy of insurance issued by defendant to the plaintiff required the defendant to defend the action instituted on behalf of Richard Dill; whereas the defendant asserted that the policy of insurance issued by it to the plaintiff did not require it to defend the action.

The court held that insofar as Dill was concerned, the injuries he sustained were suffered accidentally within the meaning of the policy. Since the alleged assault was not authorized, consented to, participated in or ratified by the plaintiff it was an accident within the meaning of the policy in so far as plaintiff was concerned. It was the type of claim which defendant was bound to defend at its peril.

The policy was prepared and written by the defendant. Therefore, if any ambiguity exists, it should be resolved in favor of the plaintiff. Under the topic of exclusions, the defendant company provided that the policy did not cover any claims or suits arising out of different contingencies wherein liability on the part of the assured might arise. However, while the exclusions apparently were written with care, no reference is made therein to any injury arising out of an assault. Since the insurer did not see fit to safeguard itself in that respect, there is no reason for reading any such thought into the policy. Therefore the contentions of the plaintiff are well founded and the company is liable for the value of the services and the amount of disbursements incurred by the plaintiff in connection with the defense of the action.

Machinery Insurance

[Ocean Accident & Guarantee Corporation, Ltd. *vs.* Penick & Ford, Ltd., Inc., 101 F. 2d 493.]

Plaintiff brought the action to recover upon a policy of machinery insurance issued by defendant, whereby it agreed to indemnify plaintiff against loss to certain specified machinery resulting from its accidental breakdown, as defined in the policy. It was alleged in plaintiff's petition that subsequent to the issuance of the policy, and on August 25, 1936, there was a breakdown of one of the generators covered by the policy.

At all times pertinent to this action, plaintiff owned and operated a corn and sugar cane products refining plant at Cedar Rapids, Iowa. The policy in question was issued in April, 1934, and provided that defendant would indemnify plaintiff against loss resulting from accident to the machinery covered by the policy. The term "accident" was defined in the policy as "a sudden and accidental breaking, deforming, burning out or rupturing of the object or any part thereof, which manifests itself at the time of its occurrency by immediately preventing continued operation or by immediately impairing the functions of the object and which necessitates repair or replacement before its operation can be resumed or its functions restored." The policy also provided that the defendant should not be liable for any loss resulting from "an accident to any object . . . while said object is undergoing experimentation or an insulation breakdown test, or is being repaired or dried out." The policy bore a use and occupancy endorsement, by which defendant agreed to pay the plaintiff a daily indemnity of $1,000.00 for each day of total prevention of business at its plant caused solely by an accident covered by the policy, and to pay a portion of the daily indemnity for partial prevention of business.

In connection with this character of insurance, defendant maintains a force of trained men who make periodical inspections of the plants insured, these inspections being made approximately every three months. On August 23, 1936, defendant's engineer-inspector Griffin, while making an inspection of plaintiff's machinery, found a ground in the rotor in the Number 1 generator at plaintiff's power plant.

Griffin immediately reported what he had discovered to Mr. Woodford, who was in charge of the power plant for plaintiff.

The chief operating engineer at the plant was absent at the time, and a Mr. Reitz, plaintiff's master mechanic, had general charge of all mechanical operations. He was not at the plant when the ground was discovered. Nothing was done with regard to the generator that day, but on the following day, August 24, 1936, it was started up and ran throughout the day with apparent regularity, except that it was running rough. Sometime during that day, while the generator was being operated, Reitz and others in plaintiff's employ, decided to shut it down and call in the General Electric Company, but it ran until seven o'clock Tuesday morning, August 25th. On Monday, while the generator was still running, defendant got in touch with the General Electric Company at Chicago, and requested that a man be sent out to look at the machine. In response to this request, a Mr. Erickson of the General Electric Company came to Cedar Rapids, arriving there Tuesday morning, after the generator had been shut down. The generator was then dismantled and the rotor taken out and placed on blocks on the floor of the power house. When it was removed from the generator and placed on the floor, it was inspected to ascertain if the weak spot in the insulation, which the megger test had indicated, could be located. At one end of the rotor, just where the copper strap came out of one of the slots on its way to thread back and go into another slot, there was a spot where the insulation was slightly grayish and discolored as though there had been heating there. There was also some indication of heating on the outer edge of the wedge bar at this point. After this preliminary examination, the rotor was subjected to a smoking out or insulation breakdown test. When such test is made upon a machine known to be grounded, as the generator in question was, the machine cannot again be operated until repaired. This test disclosed smoke at the point at one end of the rotor where some discoloration had previously been observed.

At the termination of this test, the rotor was crated up for shipment to Chicago, where proper tools for removing the end rings were available. A day or two later, Reitz, representing plaintiff, and Griffin and Lee, representing defendant, made an inspection of the rotor at Chicago. The retaining ring or end ring of the rotor had been removed and the wedge bar driven out of the slot where the burning had taken place. There was a spot on the side of the wedge bar, an inch or two from the end of the bar, where some copper from the strap which rested just below the bar in the slot had fused to the bar. There was a rupture in the copper strap, and the two ends were fused to the steel rotor. The rotor was installed new in 1924 and would have a normal life of not exceeding thirty-five years. Defendant's last inspection of the rotor was made the week of June 30 to July 3, 1936, when it was passed as being in proper condition.

Plaintiff ordered the rotor completely rewound and that was the only practicable course of repair. Inquiry was made to ascertain if a rotor was available to replace the damaged one while the rewinding was being done, but none was to be had. The rewinding of the rotor at the General Electric shops required a long time, so that the rewound rotor was not shipped to Cedar Rapids until October 3, 1936. Its installation was not completed until October 6th following. During all this period from August 25 to October 6, plaintiff purchased current to replace the current normally provided by the generator from the Iowa Power & Light Company. In this action, plaintiff sought to recover the cost of repairs to the generator and the excess of cost of power purchased over the cost of production had the generator been in use.

Counsel for defendant stated in their brief that the principal questions at the trial were: (1) Whether or not the occurrence in question constituted an accident within the meaning of the policy, and (2) whether or not the claim for the cost of power purchased was admissible in any event. It is the contention of defendant that there was no breaking of this strap and no fusing of the broken ends to the rotor; that there was defective insulation at the point in question and some of the current leaked from the strap to the rotor which caused the ground, but that this in no way manifested itself in any impairment of function of the generator; that when the smoke or breakdown test was applied that resulted in fusing the strap to the rotor; that the operation of the generator from Monday morning until Tuesday morning, following the discovery of the ground, clearly demonstrated that there was no impairment of function of the generator.

The court held that there was substantial evidence introduced by the plaintiff, tending to support its claim that before the smoke test was applied, there had occurred a breaking of the strap and a fusing of its ends to the rotor, and that this occurrence immediately caused some impairment of function.

There was expert testimony based upon a hypothetical question, to the effect that the break in this strap would occur instantly. In determining the meaning of the term "accident," as used in this policy, the question is not what it might mean to a scientist or one skilled in the subject involved, but what it means to the average man.

Defendant contends that there was no impairment of function. The policy provides that this impairment must manifest itself "by immediately impairing the function of the object," and must necessitate "repair or replacement before its functions are restored." Assuming the existence of the break and that the break was accidental, the testimony conclusively shows that an impairment of function necessarily followed. There was, to be sure, until Tuesday normal production of electricity by the generator. There was evidence that the action of the generator in producing current after the accident was not normal or proper.

The plaintiff was not required to operate a defective mechanism that was a hazard to its employees. It was not required to wait until the inevitable happened. The result of the separated strap was to produce a condition that was abnormal mechanically. The defendant's liability does not depend upon immediate discovery of the manifestation of impairment of function, but upon its manifestation by immediately impairing the functions of the object.

It is urged on this phase of the case that the court should have directed a verdict in favor of the defendant for the reason that the uncontroverted evidence showed that the claimed injury occurred while the generator was undergoing an insulation breakdown test. Endorsement No. 6 provides that defendant should not be liable for loss from an accident while the object was undergoing an insulation breakdown test. But there was substantial evidence offered by plaintiff, tending to show that the accident had already occurred before this test was made. The testimony tended to show a separation, burning, rupturing, or deforming of the generator before the test. Erickson testified that the only purpose of the test was to confirm his judgment as to the location of the trouble which had been determined before the test was made. Expert witnesses testified that the amount of current used in the smoke test would not have been sufficient to have fused or welded the copper strap in question. There was no error in denying defendant's motion for a directed verdict.

Over objection, the lower court permitted the plaintiff to prove the cost of the power purchased by it from the Iowa Power & Light Company during the time the generator was out of commission. The liability of the defendant must be predicated upon and limited by the terms of the policy.

Paragraph H of the same endorsement provides as follows: "H. The company may take such means as will in the opinion of the Company permit the resumption of Business, in whole or in part, on the Premises or to supply the functions of the Premises in some other way, or the Company may require the Assured to take such means including the use of any surplus machinery, duplicate parts, equipment, supplies and surplus or reserve stock, which may be owned or controlled by the Assured, any extra expense so incurred at the written direction of the Company to be paid by the Company. The Company may require the Assured to use finished product owned or controlled by the Assured, or similar finished product that may be purchased elsewhere, to substitute for the Business prevented, any extra expense incurred in the use or purchase of said finished product at the written direction of the Company to be paid by the Company. All such expenses, whether incurred by the Company or by the Assured at the written direction of the Company, shall be a part of and not in addition to the Limit of Loss."

This provision was for the protection of defendant, so that it might take means to accelerate the resumption of business. But there is no evidence that it ever requested plaintiff to take any steps of any kind. What plaintiff did in its purchase of power was done on its own initiative. At that time defendant had not denied liability and did not deny liability until October 6, when plaintiff first made claims. Since plaintiff acted before there was any denial of liability, the element of denial of liability is removed from the case. Defendant was liable only under the contingencies provided by its policy. It was confessedly plaintiff's duty to resume business with expedition, yet it cannot recover the cost of so doing unless the policy so provides. As a condition of liability Paragraph H provides for written direction from the defendant. As the parties have by their contract made it a condition to liability for extra expense, such as the cost of power, that it must have been procured at the written direction of the defendant, the court cannot inquire into the materiality of such a condition. Under the terms of this policy, the plaintiff was not obliged to incur this expense unless it had received written direction from the defendant so to do. The defendant gave no such directions. The language being clear and unambiguous, the court is not permitted to resort to any rules of construction. This extra expense in procuring power was not incurred by plaintiff at the written direction of defendant.

It is argued that plaintiff should be allowed to recover the cost of procuring this extra power on the theory that it was under obligation to minimize the damages. That rule has manifestly no application here. Unless the damages were of such character that plaintiff was entitled under its contract to recover from defendant, it was no concern of defendant whether the damages were minimized or not. In the final analysis, the question here to be resolved is what loss did the plaintiff suffer, which, under the terms of the policy, was recoverable. Unless this loss was recoverable, the question of minimizing the damages is quite foreign to the issue.

Malpractice Insurance

[Ocean Accident & Guarantee Corporation, Inc. *vs.* Herzberg's, Inc., 100 F. 2d 171.]

Herzberg's, Inc. is a large retail women's clothing and department store. It includes a few departments leased to and operated by persons other than the appellee corporation. Among such departments was "Irene Gray, dba The Marinello Shop, Inc." Irene Gray under the above style was named as an assured in the policy, which was the ordinary public liability policy, indemnifying the store and its named departments against claims of customers and others arising out of accidental bodily injuries occurring within or upon the premises. To this policy, however, there was attached the following endorsement or rider: "The under-mentioned policy is issued by the Company and accepted by the Assured with the understanding that the Company shall not be liable for bodily injuries, illness, or death resulting therefrom, suffered by any person or persons in consequence of an error or alleged error or mistake in administering, applying or dispensing drugs, chemicals, mixtures or the like; or in the making or compounding of prescriptions; or in consequence of professional services or treatments or the omission thereof, or malpractice on the part of any physician, surgeon, nurse, druggist, assistant, attendant or any person connected with the Assured in the operation of the business covered by this policy."

The Marinello Shop was operated by Irene Gray under the style hereinabove stated. One Goldie York was an attendant in the shop. In April, 1925, Grace Robertson, a minor, of about eleven years of age, went to this beauty shop to have a growth of hair removed from her face. This was the nature or work done generally by this and other beauty shops in Omaha during the years 1925 and 1926. Such work is described as including "facials, manicuring, and removing superfluous hair, and hair waving generally." These beauty parlors had mechanical devices and electric machines. Some of the treatments were administered by hand, and some "by electrical instruments and apparatuses." Goldie York, as an attendant in the Marinello Shop, and connected with the assured in the operation of its business, gave Grace Robertson treatments for removing superfluous hair from the face by means of an electrical apparatus called a "Tricho" machine. She testifies that "after giving these treatments her face seemed to be burned—the appearance of a burn-discoloration." Due to this bodily injury suit was commenced for Miss Robertson and a judgment was recovered against the department store.

Goldie York testified that she was a "cosmetician" and had practiced cosmetology since her graduation from a school in Los Angeles, where the art of cosmetology was taught. Irene Gray, the operator of the shop, and her employer, was also a graduate of a cosmetology school. Miss York testified that she had no special training in the operation of the Tricho machine. "We would plug the machine in and it would work automatically."

A jury was waived, and the court, sitting as a jury, found the issues for appellee and entered judgment against appellant in the sum of $14,843.46 and costs. The action of the trial court was based upon its construction of the so-called malpractice endorsement, to the effect that its application was confined to "bodily injuries suffered in consequence of professional treatments administered by any physician, surgeon, nurse, druggist, or by any assistant, attendant or helper to any such physician, surgeon, nurse or druggist."

On appeal the court held the construction of the endorsement is too narrow in view of its plain language, and the circumstances conditioning its application. It is provided, among other things, that the insurance company shall not be liable for bodily injuries suffered by any person in consequence of professional services or treatments or malpractice, on the part of any attendant, person or persons connected with the assured in the operation of the business covered by the policy. This language aptly covers the situation here presented. The Court held that the treatment of Miss Robertson's face for the removal of hair therefrom was a professional treatment administered in a department of the store by persons connected with the assured in the operation of its business.

The term profession has in the past been so generally associated with theology, medicine, and law, that the construction adopted by the trial court may be readily understood. However, the term has long ceased to be connected and restricted exclusively to those so-called learned professions. The New Century Dictionary 1927, uses this language: "Formerly theology, law and medicine were specially known as the professions; but as the application of science and learning are extended to other departments of affairs, other vocations also receive the name."

The obvious error involved in the professional application of the Tricho apparatus, whether due to negligence or ignorance, amounted to malpractice under the terms of this endorsement. In consequence thereof appellant is expressly not liable under its policy.

Office and Store Robbery Insurance

[Fidelity & Deposit Co. of Maryland *vs.* Friedlander, 101 F. 2d 106.]

The plaintiff operated a small jewelry store in Memphis. A robbery occurred in the store on the morning of October 5, 1935, and he brought separate suits against the defendants to recover losses under their policies of insurance.

The cases were tried together and the court granted a motion for a directed verdict against each company after denying a similar motion made by them. The sole question is one of construction and involves the meaning of the word "employee" as used in Sec. (f) of Item 9 of the policy of one company, and the word "employees" as used in No. 11 of the "Declarations" in the policy of the second company. These provisions are:

"Section (f). On property specified in Item 8, from within the premises, while a custodian and at least one other employee of the Assured are on duty therein."

"There will be one or more employees (state number) or members or officers of the firm on duty inside the premises in addition to the custodian at all times this policy is in force."

The store carried between twenty and twenty-five thousand dollars worth of jewelry. It was a small place with a frontage of eight feet. Friedlander testified that there were regularly employed therein two persons, who devoted their entire time to it, to-wit, the manager, who as a rule arrived between 7 and 7:30 in the morning, and Friedlander's granddaughter, who came on duty between 8:30 and 9. Each stayed until closing time, around 5:30 in the afternoon. Friedlander and his son-in-law, visited the store nearly every day "to see how things were getting along" and would stay from half an hour to an hour. The only other person who did any work at the store was H. H. Peterson, who performed its janitor service; and the question is whether his status was that of an "employee" while he was so occupied, in the sense that the term was used in the clauses quoted from the policies.

Peterson worked for Ed Foley, who operated the Bluff City Window Cleaning Company, and had been with him seven or eight years. Foley had forty or fifty agreements for window cleaning service on Main Street and in addition furnished janitor service, under contract, to another store, two doors from the jewelry store. In August, 1935, Foley and Friedlander entered into an oral contract, at an agreed compensation of $7.00 per month to supply the jewelry store with window service on the outside every morning and once a week on the inside, and to do miscellaneous porter service each morning.

Peterson, in the performance of these duties, went to the store each morning between 8 and 8:30 and finished before it opened for business. Foley's instructions to him were to do the work he had contracted with Friedlander to do, but that if Roescher asked him to do anything else in connection with the cleaning to do it also. Both Foley and his manager testified that neither Friedlander nor the manager had the right to direct or control Peterson in the manner, means or details of how he was to do the work. Friedlander had nothing to do with the selection of the employee who was to do the work. Foley could have sent any one of his employees and apparently chose Peterson because he was already doing the work at a nearby store.

Peterson had no key, but, ordinarily, upon his arrival, was admitted by the manager. On the morning of the robbery, when Peterson arrived, he rattled the door and the manager, who was engaged in putting diamonds in the show window, reached over and unlocked the door. Peterson entered and was in the act of closing the door, having it almost shut, when two men, one carrying a satchel under his arm, approached, pushed the door open and entered. When the men entered Peterson stepped aside, thinking that they were other employees of Friedlander or Friedlander himself and took four or five steps away from the door. When he looked around one of the men was covering him with a pistol and the other had covered Roescher. One of the robbers stayed with them while the other robbed the store of its diamonds and jewelry. The intruders left, slamming the door; Peterson got his hands loose and then untied Roescher. The police were notified but the robbers were never apprehended.

Was Peterson an employee of Friedlander within the meaning of the quoted policy provisions?

The court held that aside from the inquiry as to who hired or paid Peterson, or had the right to supervise his duties or discharge him, it is nevertheless true that in a very real sense he was employed in Friedlander's work. The discharge of his duties was essential to the conduct of Friedlander's business. He was an ordinary janitor and the routine nature of his work was exactly the same as if he had been answerable directly to Friedlander. It is permissible to say that in the sense of the controverted provisions of the policies Peterson was an employee of Friedlander and this interpretation will satisfy the evident purpose of the provisions.

Appellants contend that Peterson was an "employee" of Foley, an independent contractor. However, it is clear enough that the terms "employee" or "employees" used in the insurance contracts between appellants and appellee were not intended to be given any such technical meaning.

Surety

[Craswell et al. *vs.* Biggs et al., 86 P. 2d 71.]

This is an action upon a bond given to secure the faithful performance of a contract for work on a portion of a road and for the prompt payment of all laborers, mechanics and subcontractors and material men. The facts in regard to the case are about as follows: On May 13, 1931, plaintiffs entered into a contract with the State of Oregon for the construction of a road, giving the usual statutory bond guaranteeing the completion of the construction work and the prompt payment of all claims for labor and material entering into same.

On the same day plaintiffs entered into a subcontract with J. M. Biggs and J. E. Hallyburton for the completion of a portion of the construction work. This subcontract provided that Biggs and Hallyburton were to furnish a surety bond to plaintiffs in the sum of $15,000, guaranteeing the performance of the work and payment for labor and materials. Such bond was furnished by Biggs and Hallyburton, signed by themselves and by the defendant Aetna Casualty & Surety Company by their agent, Mr. Lively.

In the latter part of May, Biggs and Hallyburton asked for additional work. They were told by plaintiffs that they could have it if their surety would bond such work. About the 26th or 27th of May, Mr. McIntyre, who was in charge of the job for plaintiffs, came to Portland, and, together with his partners, called on Mr. Lively and explained that Biggs and Hallyburton had made good progress with their work and wanted to take over the greater portion of the remainder of the job. The matter was discussed and plaintiffs desired to know if Mr. Lively would bond Biggs and Hallyburton for the additional work. It is the claim of the plaintiffs that Lively told them: "it was not necessary to write a new bond covering such additional work, as the bond already in existence would cover such work. He also stated that an additional premium would be charged Biggs & Hallyburton for this extra work. He instructed the appellants to furnish him with a copy of the supplemental contract as soon as it was executed."

The defendant company denied that Lively told the parties that the bond would be extended so as to cover the additional work and denied liability on the bond for the work embraced in the second subcontract for the reason that Lively was not authorized to extend the bond to cover such additional work and for the reason that the agreement was not in writing.

The plaintiffs endeavored to establish the scope of Mr. Lively's apparent authority by evidence of general reputation of his ability to bind the company.

The court held that there is not a particle of evidence that Mr. Lively ever did any similar act which was acquiesced in by the Aetna Casualty & Surety Company. Taking it for granted that Mr. Lively made the representation as alleged, still the company is not bound, unless he had either actual or apparent authority to make the same.

An agent's statement is not binding upon his principal unless the agent was acting within the scope of his authority, either real or apparent. The trial court found, and the testimony showed, that the second contract actually increased the risk. The work under the first contract amounted to about $20,000, and under the second contract, to over $28,000. One of the defendant contractors testified that the main part of the loss fell under the second contract. The court found that actual loss was sustained on the work performed under the second contract.

The agent Lively acted by virtue of the power of attorney evidencing his authority, which provided, in effect, that Karl V. Lively "as such Resident Vice-President has full power and authority to sign and execute, on behalf of The Aetna Accident and Liability Company, any and all bonds and undertakings, and all bonds and undertakings signed by him, when sealed and attested by a Resident Assistant Secretary, shall be as valid and binding upon the Company as if said bonds and undertakings had been signed by the President and duly sealed and attested." This power of attorney was on file with the Insurance Department of the State of Oregon and was introduced in evidence by the plaintiffs. It was filed for the information of plaintiffs, or anyone. The power of attorney gives no authority to Mr. Lively to extend the coverage or liability of a bond already executed. He had no real or apparent authority to extend the coverage of the bond of $15,000, given to cover the work on the second contract.

There is the rule that under certain conditions certain written instruments may be discharged or even modified by a subsequent parol contract, but the evidence sustaining such subsequent parol contract must be clear, convincing and conclusive and it must be predicated upon a legal and valid consideration. In the instant case there is no evidence whatsoever of any legal or valid consideration for the tremendous added liability which plaintiffs seek to fasten upon the surety by virtue of this oral conversation.

Section 9-909, Oregon Code 1930, provides that an agreement to answer for the debt, default or miscarriage of another must be in writing.

Section 9-909 not only provides that the writing must be subscribed by the party to be charged, or his lawfully authorized agent, but it provides that evidence of the agreement shall not be received other than the writing, and that the agreement is void unless the same or some note or memorandum thereof, expressing the consideration, be in writing and subscribed by the party to be charged, or by his lawfully authorized agent.

In this case the agreement declared upon by the plaintiff was a regular agreement to answer for the debt default or miscarriage of another and comes clearly within the statute of frauds.

It is contended by plaintiffs that, since the oral agreement or modification was relied upon by the parties and executed by one of the parties, it is taken out of the statute. It must be remembered that the contract to do this work was between the plaintiffs and Biggs and Hallyburton, and before any part-performance can take the matter out of the statute of frauds, it must be shown that the oral agreement was made by a person qualified and authorized to make it.

It is contended by plaintiffs that the court erred in not holding that the defendant Aetna Casualty & Surety Company had waived any lack of authority on the part of its agent, and any irregularity in the nature of the agreement to extend coverage of the bond to the additional work, and that it was estopped by reason of its conduct and by reason of the agreement that had been executed by the plaintiffs in good faith. The defendant surety company is not bound by any estoppel or waiver unless it be established that the waiver or the estoppel resulted from the acts of an agent who possessed authority to create a waiver or an estoppel. In the instant case the trial court found that Mr. Lively had no authority to enter into the agreement in the first instance; and, second, that any agreement such as contended for in the instant case must be in writing.

It would be strange indeed to hold that while Mr. Lively did not have any authority to enter into the agreement as alleged by plaintiffs, and the same was not binding upon the defendant surety company because not in writing, yet since he has made the agreement the defendant is bound because of the doctrine of waiver or estoppel; in other words, that which cannot be done directly may be done indirectly. The doctrine of estoppel or waiver in the instant case cannot reasonably be applied.

CASUALTY ACTUARIAL SOCIETY

May 19, 1939

THE COUNCIL

**Officers:*	Francis S. Perryman	*President*
	Harmon T. Barber	*Vice-President*
	William J. Constable	*Vice-President*
	Richard Fondiller	*Secretary-Treasurer*
	Clarence W. Hobbs	*Editor*
	Thomas O. Carlson	*Librarian*
†Ex-Presidents:	Winfield W. Greene	1940
	Leon S. Senior	1942
†Ex-Vice-Presidents:	Ralph H. Blanchard	1940
	Charles J. Haugh	1940
	Sydney D. Pinney	1942
†Elected:	Arnette R. Lawrence	1939
	Ralph M. Marshall	1939
	F. Stuart Brown	1939
	G. F. Michelbacher	1940
	Norton E. Masterson	1940
	Mark Kormes	1940
	James M. Cahill	1941
	Robert V. Sinnott	1941
	Emma C. Maycrink	1941

*Terms expire at the annual meeting in November, 1939.

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

COMMITTEES

Committee on Admissions

Thomas F. Tarbell (Chairman)
Gustav F. Michelbacher
William F. Roeber
William J. Constable
Hiram O. Van Tuyl

Auditing Committee

W. Phillips Comstock (Chairman)
Howard G. Crane
Lee J. Wolfe

Editorial Committee

Clarence W. Hobbs (Chairman)

Assistant Editors

Clarence A. Kulp
Jack J. Smick
Thomas O. Carlson

Educational Committee

Clarence A. Kulp (Chairman)
Emma C. Maycrink
Norton E. Masterson
William M. Corcoran
Lloyd A. H. Warren
William H. Burling
Albert Z. Skelding
Charles J. Haugh
Thomas O. Carlson (*ex-officio*)

Examination Committee

Nels M. Valerius (General Chairman)

Fellowship

Mark Kormes (Chairman)
Russell P. Goddard
Robert V. Sinnott

Associateship

Harry V. Williams (Chairman)
Arthur E. Cleary
Matthew H. McConnell, Jr.

Committee on Papers

Sydney D. Pinney (Chairman)
Paul Dorweiler
Joseph Linder
Clarence W. Hobbs (*ex-officio*)

Committee on Program

Ralph H. Blanchard
William J. Constable
Winfield W. Greene
Clarence W. Hobbs
Gustav F. Michelbacher
Leon S. Senior
Harmon T. Barber
Richard Fondiller (*ex-officio*)
Francis S. Perryman (Chairman, *ex-officio*)

SPECIAL COMMITTEES

Committee on Reserves for Fidelity and Surety Lines

Charles V. R. Marsh (Chairman)
Joseph J. Magrath
John A. Mills
John A. Barter
Arthur E. Thompson

Committee on Mortality for Disabled Lives

Paul Dorweiler (Chairman)
Ralph M. Marshall
Mark Kormes
Harmon T. Barber
S. Bruce Black
Charles M. Graham
Richard M. Pennock

Committee on Study of Automobile Insurance Costs

Ralph H. Blanchard (Chairman)
Francis S. Perryman
Thomas F. Tarbell
Paul Dorweiler
Harold J. Ginsburgh
Grady H. Hipp
William J. Constable

Committee on Advancement of Associates

F. Stuart Brown (Chairman)
Thomas O. Carlson
James M. Cahill

FELLOWS

John W. Ainley
Gilbert E. Ault
William B. Bailey
Harmon T. Barber
John L. Barter
Elgin R. Batho
Roland Benjamin
Ernest T. Berkeley
S. Bruce Black
Ralph H. Blanchard
Edward J. Bond, Jr.
Thomas Bradshaw
William Breiby
F. Stuart Brown
Herbert D. Brown
George B. Buck
Charles H. Burhans
William H. Burhop
William H. Burling
James M. Cahill
Freeland R. Cameron
Edmund E. Cammack
John W. Carleton
Thomas O. Carlson
Raymond V. Carpenter
Arthur E. Cleary
Barrett N. Coates
Clarence S. Coates
Edmund S. Cogswell
Henry Collins
W. Phillips Comstock
William J. Constable
Edwin A. Cook
John A. Copeland
William M. Corcoran
Walter G. Cowles
James D. Craig
Howard G. Crane
E. Alfred Davies
Evelyn M. Davis
Miles M. Dawson
Elmer H. Dearth
Eckford C. DeKay
Paul Dorweiler
Earl O. Dunlap
John Edwards
James S. Elston
Walter T. Eppink
Edward B. Fackler
Everett S. Fallow
Henry Farber
Gilbert W. Fitzhugh
James E. Flanigan
Benedict D. Flynn
Richard Fondiller
Charles S. Forbes
Gardner V. Fuller
Charles H. Franklin
Carl H. Frederickson
Joseph Froggatt
Harry Furze
Fred S. Garrison
Harold J. Ginsburgh
J. Bryan Glenn
James W. Glover
Russell P. Goddard
Edward S. Goodwin
Charles M. Graham
Thompson B. Graham
William J. Graham
William A. Granville
Winfield W. Greene
Robert C. L. Hamilton
H. Pierson Hammond
Edward R. Hardy
Leonard W. Hatch
Charles J. Haugh
Charles E. Heath
Robert Henderson
David Heron
Robert J. Hillas
Clarence W. Hobbs
Lemuel G. Hodgkins
Frederick L. Hoffman
Charles H. Holland
Russell O. Hooker
Solomon S. Huebner
Charles Hughes
Robert S. Hull
Burritt A. Hunt

FELLOWS—Continued

Arthur Hunter
William A. Hutcheson
Charles W. Jackson
Henry H. Jackson
William C. Johnson
F. Robertson Jones
Elsie Kardonsky
Gregory C. Kelly
William H. Kelton
Walter I. King
A. Loomis Kirkpatrick
Mark Kormes
Clarence A. Kulp
John M. Laird
Stewart M. LaMont
John R. Lange
Arnette R. Lawrence
James R. Leal
William Leslie
Joseph Linder
Edward C. Lunt
Daniel J. Lyons
William N. Magoun
Ralph M. Marshall
Norton E. Masterson
Arthur N. Matthews
Emma C. Maycrink
D. Ralph McClurg
M. H. McConnell, Jr.
Alfred McDougald
Robert J. McManus
Gustav F. Michelbacher
John H. Miller
Samuel Milligan
John A. Mills
James F. Mitchell
Victor Montgomery
William L. Mooney
George D. Moore
Albert H. Mowbray
Louis H. Mueller
Frank R. Mullaney
Ray D. Murphy
Lewis A. Nicholas
Thomas M. Oberhaus
Edward Olifiers
Frank J. O'Neill
Robert K. Orr
Olive E. Outwater
Bertrand A. Page
Sanford B. Perkins
W. T. Perry
Francis S. Perryman
Jesse S. Phillips
Samuel C. Pickett
Sydney D. Pinney
Dudley M. Pruitt
A. Duncan Reid
Frederick Richardson
Otto C. Richter
Robert Riegel
William F. Roeber
Emil Scheitlin
Leon S. Senior
George L. Shapiro
David Silverman
Robert V. Sinnott
Albert Z. Skelding
Edward S. Skillings
Jack J. Smick
John B. St. John
Edward C. Stone
Wendell M. Strong
William Richard Strong
Thomas F. Tarbell
John S. Thompson
John L. Train
Antonio T. Traversi
Nels M. Valerius
Hiram O. Van Tuyl
Alan W. Waite
Harry V. Waite
Lloyd A. H. Warren
Albert W. Whitney
Harry V. Williams, Jr.
Herbert E. Wittick
Lee J. Wolfe
Arthur B. Wood
Charles N. Young

ASSOCIATES

Milton Acker
Saul B. Ackerman
Austin F. Allen
Robert E. Ankers
A. Edward Archibald
James C. Barron
Arthur E. Bateman
W. Harold Bittel
Nellas C. Black
Edward L. Bomse
Perry S. Bower
Cloudesley R. Brereton
Helmuth G. Brunnquell
Louis Buffler
James M. Bugbee
Margaret A. Burt
Leo D. Cavanaugh
S. T. Chen
Stuart F. Conrod
George A. Cowee
William H. Crawford
Joseph B. Crimmins
Malvin E. Davis
Reginald S. Davis
Harilaus E. Economidy
Frank A. Eger
George B. Elliot
Jarvis Farley
L. Leroy Fitz
Amos H. Fitzgerald
Frank A. Fleming
John Froberg
Fred J. Fruechtemeyer
Maurice L. Furnivall
Richard W. Gallon
John J. Gately
Richard A. Getman
Joseph P. Gibson, Jr.
James F. Gildea
Harold R. Gordon
Walter C. Green
A. N. Guertin
Robert E. Haggard
Hartwell L. Hall
William D. Hall
Hugh P. Ham
Scott Harris
Ward Van Buren Hart
George F. Haydon
Grady H. Hipp
Edward T. Jackson
Carl N. Jacobs
Edward S. Jensen
H. Lloyd Jones
Harold M. Jones
Loring D. Jones
Carl L. Kirk
E. W. Kitzrow
Morris Koloditzky
William Lassow
Howard A. Lewis
Julius Lieblein
Harold E. MacKeen
Joseph J. Magrath
Jacob Malmuth
Charles V. R. Marsh
William H. Mayer, Jr.
Rosswell A. McIver
Samuel M. Michener
Henry C. Miller
John L. Milne
Edward H. Minor
John C. Montgomery
Joseph P. Moore
Roland V. Mothersill
Robert J. Myers
Fritz Muller
S. Tyler Nelson
William Newell
Karl Newhall
Earl H. Nicholson
Walter E. Otto
Donald M. Overholser
Richard M. Pennock
John H. Phillips
Morris Pike
John W. Piper
Kenneth B. Piper
William A. Poissant
William F. Poorman
Sylvia Potofsky
John M. Powell

ASSOCIATES—Continued

Joseph Raywid
Harry F. Richardson
James A. Roberts
Rainard B. Robbins
Harry M. Sarason
Arthur Sawyer
Exequiel S. Sevilla
Norris E. Sheppard
John L. Sibley
Arthur G. Smith
William F. Somerville
Armand Sommer
Alexander A. Speers
Harold S. Spencer
Herbert P. Stellwagen
Kendrick Stoke
Walter F. Sullivan
Arthur E. Thompson
Frederick H. Trench
M. Elizabeth Uhl
Charles S. Warren
James H. Washburn
Leland L. Waters
Max S. Weinstein
Eugene R. Welch
Alexander C. Wellman
Walter I. Wells
Charles A. Wheeler
Frank G. Whitbread
William R. Williamson
Donald M. Wood
Donald M. Wood, Jr.
Milton J. Wood
Charles E. Woodman
Barbara H. Woodward
James M. Woolery
Floyd E. Young

ABSTRACT FROM THE MINUTES OF THE MEETING
May 19, 1939

The semi-annual (fifty-second regular) meeting of the Casualty Actuarial Society was held at the Hotel Biltmore, New York, on Friday, May 19, 1939.

President Perryman called the meeting to order at 10:30 A. M. (daylight saving time). The roll was called showing the following forty-eight Fellows and seventeen Associates present:

FELLOWS

Ault
Barber
Berkeley
Blanchard
Cahill
Cameron
Cleary
Constable
Crane
DeKay
Fondiller
Garrison
Ginsburgh
Goddard
Graham, C. M.
Graham, T. B.
Graham, W. J.
Greene
Hobbs
Hull
Hunt
Kardonsky
Kelly
Kormes
Marshall
Masterson
Maycrink
McManus
Miller
Mills
Mullaney
Nicholas
Oberhaus
Orr
Perryman
Pinney
Pruitt
Senior
Shapiro
Silverman
Sinnott
Skillings
Smick
Tarbell
Valerius
Van Tuyl
Williams
Wolfe, Lee J.

ASSOCIATES

Barron
Black, N. C.
Buffler
Crimmins
Elliott
Farley
Fitz
Fitzgerald
Gildea
Hipp
Mayer
Minor
Nicholson
Potofsky
Robbins
Stoke
Wheeler

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

Mr. Perryman read his presidential address.

The minutes of the meeting held November 17 and 18, 1938, were approved as printed in the *Proceedings*.

The Secretary-Treasurer (Richard Fondiller) read the report of the Council and upon motion it was adopted by the Society. The Council approved a new Syllabus of Examinations for Associateship and for Fellowship, effective for the 1940 examinations and thereafter.

The Librarian (Thomas O. Carlson) reported upon the increasing use of the Library by members and students.

The new papers printed in this Number were read.

Discussion was begun of the papers presented at the last meeting.

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

Discussion was concluded of the papers presented at the last meeting.

Informal discussion was participated in by a number of members and invited speakers upon the following topics:

> "Premium and Loss Reserves for Casualty and Bonding Insurance—A Survey and Criticism of Present Methods and Suggestions for Improvement"

with relation to the following:

Schedule P including recent new parts 5 and 5a.

Discounting of long term compensation (and other) claim reserves. What is appropriate rate of interest?

Reserves for loss expenses and for incurred but not reported cases. Other additional reserves, e.g., for unemerged occupational diseases.

Reserve figures shown in various publications and tests of adequacy of reserves including "short cut" methods recently advocated and used for this purpose.

Utility of Schedules G, H and O.

Are present requirements for unearned premium reserves adequate and satisfactory? Special conditions are recognized in respect of non-cancellable accident and health business and credit insurance. Does this cover the ground fully or are there other classes, e.g., contract bonds, for which the usual reserve is not appropriate.

Proper Premium Reserves for retrospective plans of rating risks.

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

Representatives of Casualty Companies and Organizations Present

John C. Barrows, American Surety Company, New York.

James A. Beha, Insurance Attorney, New York.

R. H. Caplan, Jr., Chief Accountant, Fireman's Fund Indemnity Company, New York.

Ellis H. Carson, Royal Indemnity Company, New York.

Joseph F. Collins, Chief, Rating Bureau, New York State Insurance Department, New York.

G. W. Crist, Jr., Manager, Metropolitan Department, Fidelity & Deposit Company, New York.

George A. Dierauf, Secretary-Treasurer, Compensation Insurance Rating Board, New York.

William F. Dowling, Assistant Manager, Lumber Mutual Casualty Insurance Company, New York.

Ernest A. Erickson, Statistician, Utilities Mutual Insurance Company, New York.

John G. Goetz, Director, Risk Research Institute, New York.

Martha A. Henderson, Liberty Mutual Insurance Company, Boston, Mass.

Myrtle S. Kelly, Statistician, Pennsylvania Compensation Rating & Inspection Bureau, Philadelphia, Pa.

Frederick C. Kessler, Secretary-Treasurer, Consolidated Taxpayers Mutual Insurance Company, Brooklyn, N. Y.

John H. Lewis, Statistician, Lumber Mutual Casualty Insurance Company, New York.

Peter H. May, Vice-President-Comptroller, Maryland Casualty Company, Baltimore, Md.

Edgar F. Muller, Assistant Statistician, United States Fidelity & Guaranty Company, Baltimore, Md.

F. A. NELSON, Jamestown Mutual Insurance Company, Jamestown, New York.

ARTHUR H. REEDE, Harvard University, Cambridge, Mass.

HENRY D. SAYER, Deputy Executive Director, New York State Insurance Fund, New York.

F. B. SCHROETER, Zurich General Accident & Liability Insurance Company, New York.

C. G. VAN DER FEEN, Statistician, National Bureau of Casualty and Surety Underwriters, New York.

H. G. WIBERG, Assistant Secretary, Lumber Mutual Casualty Insurance Company, New York.

CHARLES R. WILDER, Vice-President, Liberty Mutual Insurance Company, New York.

B. H. ZIMELS, Statistician, Consolidated Taxpayers Mutual Insurance Company, Brooklyn, N. Y.

INDEX TO VOLUME XXV

PAGE

ACKER, MILTON
Discussion.... 358

ACKERMAN, S. B.
Book Review, Gross Negligence with Automobiles, Frank G. Turner. 211

ACTUARY, THE CASUALTY
Francis S. Perryman (Presidental Address, May 19, 1939).... 291

ADDITIONAL INDEX NUMBERS OF COMPENSATION INSURANCE RATE LEVELS
Nels M. Valerius.... 298

ADDRESS OF THE PRESIDENT
Experience Rating on the Road to Reform, Leon S. Senior.... 1
The Casualty Actuary, Francis S. Perryman.... 291

AINLEY, JOHN W.
Problems in Relation to Contractual Liability Insurance.... 151

AVIATION INSURANCE
Barbara H. Woodward.... 81
Written Discussion of this Paper by John A. Mills.... 339

BARTER, J. L.
Discussion.... 356

BLACK, S. BRUCE
Address at Society's Dinner, November 17, 1938.... 238

BLANCHARD, RALPH H.
Informal Discussion.... 187

BONDING INSURANCE, CASUALTY AND, PREMIUMS AND LOSS RESERVES FOR.
Informal Discussion.... 366

CASUALTY ACTUARIAL SOCIETY
Officers, Council, Committees and Members....277, 466
Minutes of Meeting
November 17 and 18, 1938.... 284
May 19, 1939.... 473

CASUALTY ACTUARY, THE
Francis S. Perryman (Presidental Address, May 19, 1939).... 291

CASUALTY AND BONDING INSURANCE, PREMIUMS AND LOSS RESERVES FOR.
Informal Discussion.... 366

COMPENSATION INSURANCE RATE LEVELS, ADDITIONAL INDEX NUMBERS OF. Nels M. Valerius.... 298

PAGE

CONTRACTUAL LIABILITY INSURANCE, PROBLEMS IN RELATION TO. John W. Ainley.......... 151
Discussion of this Paper by J. L. Barter and Milton Acker........ 356

CRAIG, J. D.
Book Review Economical Administration of Health Insurance Benefits. International Labor Office.......... 394

CRANE, HOWARD G.
Book Review. Lloyd's, The Gentlemen at the Coffee-House. Ralph Straus.......... 220

CURRENT NOTES
Thomas O. Carlson, Current Notes Editor..........246, 431

DORWEILER, PAUL
Informal Discussion.......... 201

EXPERIENCE RATING ON THE ROAD TO REFORM
Leon S. Senior (Presidential Address, November 17, 1938).......... 1

ECONOMIDY, H.
Book Review. Insurance Company Examinations. Louis H. Pink.. 423

FEDERAL VS. STATE SUPERVISION OF INSURANCE. Rainard B. Robbins.. 313

GINSBURGH, H. J.
Discussion.......... 174
Informal Discussion.......... 205

GLENN, J. B.
Book Review. The Case for Experience Rating in Unemployment Compensation Insurance and a Proposed Method. Herman Feldman and Donald M. Smith.......... 388

GORDON, HAROLD R.
Book Review. Hospital Care Insurance. C. Rufus Rorem........ 213

GREENE, W. W.
Discussion.......... 342

HAGGARD, R. E.
Book Review. Disability Evaluation. Principles of Treatment of Compensable Injuries. Earl D. McBride, M.D.......... 389

HARRINGTON, HON. CHARLES F. J.
Informal Discussion.......... 207

HIPP, GRADY H.
Informal Discussion.......... 366

HOBBS, CLARENCE W.
Book Review. Automobile Guest Law Statutes and Decisions. M. Vartan Malcolm.......... 209
Book Review. Law of Implied Negligence. Frank G. Turner..... 219

INDEX NUMBERS, ADDITIONAL, OF COMPENSATION INSURANCE RATE LEVELS. Nels M. Valerius.......... 298

INFORMAL DISCUSSION PAGE
Surety Rate-Making—an Approach to the Subject. Edward C. Lunt 180
Premiums and Loss Reserves for Casualty and Bonding Insurance. . 366

INSURANCE, AVIATION
Barbara H. Woodward. 81
Written Discussion of this Paper By John A. Mills. 339

INSURANCE, CASUALTY AND BONDING, PREMIUMS AND LOSS RESERVES FOR. Informal Discussion. 366

INSURANCE, CONTRACTUAL LIABILITY, PROBLEMS IN RELATION TO. John W. Ainley. 151
Discussion of this Paper by J. L. Barter and Milton Acker. 356

INSURANCE, FEDERAL VS. STATE SUPERVISION OF. Rainard B. Robbins. . 313

JACKSON, HENRY H.
Book Review. Life Insurance, John H. Magee. 411

KULP, C. A.
Book Review. The Impossibility of War Risk Insurance. Sir William P. Elderton. 214
Book Review. Insurance Matters Elsewhere. Ludwig A. Graner and Gerda A. Graner. 217
Book Review. Health Insurance and Medical Care. The British Experience. Douglass W. Orr, M. D. and Jean Walker Orr. 401
Book Review. Planning and Administration of Unemployment Compensation in the United States. Bryce M. Stewart. 417

LEGAL NOTES
By Saul B. Ackerman. 252, 439

LIABILITY INSURANCE, CONTRACTUAL, PROBLEMS IN RELATION TO. John W. Ainley. 151
Discussion of this Paper by J. L. Barter and Milton Acker. 356

LEWIS, MARTIN W.
Informal Discussion. 180

LOSS RESERVES, PREMIUMS AND, FOR CASUALTY AND BONDING INSURANCE
Informal Discussion. 366

LUNT, EDWARD C.
Surety Rate Making. An Approach to the Subject. 16

MACHINE COMPUTATION, TABLES ADAPTED FOR. Francis S. Perryman. . 121
Discussion of this Paper by Ralph M. Marshall, Robert J. Myers and Francis S. Perryman. 350

MARSH, CHARLES V. R.
Informal Discussion. 193

MARSHALL, RALPH M.
Discussion. 350

MASTERSON, NORTON E.
Informal Discussion. 383

MAYCRINK, EMMA C. PAGE
Discussion 170

MICHELBACHER, G. F.
Watch your Statistics 97
Discussion 349

MILLS, JOHN A.
Discussion 339
Informal Discussion 367

MINUTES OF MEETING
November 17 and 18, 1938 284
May 19, 1939 473

MOLNAR, PAUL
Informal Discussion 204

MOORE, GEORGE D.
Discussion 168

MOWBRAY, A. H.
Book Review. Principles of the New York Standard Fire Insurance Policy. Abe J. Goldin 224
Discussion 346
Book Review. Individual Reserves and Kindred Delusions, Henry H. Jackson 405
Book Review. Property-Life Insurance. Hans Heymann, Ph.D. 418

MYERS, ROBERT J. 353

OBITUARIES
Claude W. Fellows 271
James Fulton Little 273
Charles Gordon Smith 275

PERRYMAN, FRANCIS S.
Tables Adapted for Machine Computation 121
Informal Discussion 197
President's Address, May 19, 1939, "The Casualty Actuary" 291
Discussion 355

PERSONAL NOTES 250, 438

PINK, HON. LOUIS H.
Address at Society's Dinner, November 17, 1938 233

PINNEY, SYDNEY D.
Discussion 176

PREMIUMS AND LOSS RESERVES FOR CASUALTY AND BONDING INSURANCE
Informal Discussion 366

PROBLEMS IN RELATION TO CONTRACTUAL LIABILITY INSURANCE. John W. Ainley 151
Discussion of this Paper by J. L. Barter and Milton Acker 356

PAGE

RATE-MAKING, SURETY. AN APPROACH TO THE SUBJECT. Edward C. Lunt........ 16
Informal Discussion of this Paper........ 180

REFORM, EXPERIENCE RATING ON THE ROAD TO.
Leon S. Senior (Presidential Address, November 17, 1938)........ 1

RESERVES, LOSS, FOR CASUALTY AND BONDING INSURANCE, PREMIUMS AND INFORMAL DISCUSSION........ 366

REVIEWS OF PUBLICATIONS
Clarence A. Kulp, Book Review Editor........209, 388

RETROSPECTIVE RATING PLAN FOR WORKMEN'S COMPENSATION RISKS, THE. Sydney D. Pinney. Volume XXIV, Page 291.
Discussion of this Paper by H. J. Ginsburgh and Sydney D. Pinney.. 174

RIEGEL, ROBERT
Book Review. Research and Statistical Methodology Books and Reviews. Oscar Krisen Buros........ 421

ROBBINS, RAINARD B.
Book Review. Group Purchase of Medical Care by Industrial Employees. Leahmae Brown........ 209
Federal vs. State Supervision of Insurance........ 313
Book Review. Health Insurance Plans. National Industrial Conference Board........ 400

SENIOR, LEON S.
President's Address, November 17, 1938, "Experience Rating on the Road to Reform"........ 1

SKELDING, A. Z.
Book Review. Tables for Calculating by Machine, Logarithms to 13 Places of Decimals. Frederic Deprez........ 422

SMITH, A. G.
Book Review. Payroll Audit Reference Book. National Bureau of Casualty and Surety Underwriters........ 414

SPECIAL FUNDS UNDER THE NEW YORK WORKMEN'S COMPENSATION ACT.
Grady H. Hipp. Volume XXIV, Page 247
Discussion of this Paper by George D. Moore and Emma C. Maycrink........ 168

STATISTICS, WATCH YOUR. G. F. Michelbacher........ 97
Written Discussion of this Paper by W. W. Greene, A. H. Mowbray and G. F. Michelbacher........ 342

STELLWAGEN, H. P.
Book Review, Report of the Joint Legislative Committee to Investigate Automobile Insurance........ 722

STONE, EDWARD C.
Book Review. Pioneers of American Liability Insurance. Edson S. Lott........ 221
Address at Society's Dinner, November 17, 1938........ 241

SUPERVISION OF INSURANCE, FEDERAL VS. STATE PAGE
Rainard B. Robbins.. 313

SURETY RATE-MAKING. AN APPROACH TO THE SUBJECT.
Edward C. Lunt.. 16
Informal Discussion of this Paper.. 180

TABLES ADAPTED FOR MACHINE COMPUTATION. Francis S. Perryman... 121
Discussion of this Paper by Ralph M. Marshall, Robert J. Myers and Francis S. Perryman.. 350

TARBELL, THOMAS F.
Informal Discussion.. 377

THE CASUALTY ACTUARY
Francis S. Perryman. (Presidential Address, May 19, 1939)....... 291

VALERIUS, NELS M.
Additional Index Numbers of Compensation Insurance Rate Levels.. 298

VAN TUYL, H. O.
Informal Discussion.. 371

VAN DER FEEN, C. G.
Informal Discussion.. 385

WARREN, L. A. H.
Book Review. Frequency Curves and Correlation. W. Palin Elderton.. 398

WATCH YOUR STATISTICS
G. F. Michelbacher.. 97
Written Discussion of this Paper by W. W. Greene, A. H. Mowbray and G. F. Michelbacher.. 342

WHEELER, CHARLES A.
Informal Discussion.. 374

WHITNEY, ALBERT W.
Book Review. Twenty-Five Years of Health Progress. Louis I. Dublin and Alfred J. Lotka.. 230

WILLIAMSON, W. R.
Book Review. Insurance, Facts and Problems. Alfred Manes..... 216
Book Review. Labor's Risks and Social Insurance. Harry A. Millis and Royal E. Montgomery.. 408

WOODWARD, BARBARA H.
Aviation Insurance.. 81

CASUALTY ACTUARIAL SOCIETY

ORGANIZED 1914

1939 YEAR BOOK

Foreword

Officers, Council and Committees

List of Fellows and Associates

Officers of the Society since Organization

List of Deceased Members

List of Students

Constitution and By-Laws

Examination Requirements

1938 Examination Questions

Papers in the Proceedings

(Addendum to Volume XXV of the *Proceedings*)

Corrected to February 1, 1939 No. 18

FOREWORD

The Casualty Actuarial Society was organized November 7, 1914 as the Casualty Actuarial and Statistical Society of America, with 97 charter members of the grade of Fellow. The present title was adopted on May 14, 1921. The object of the Society is the promotion of actuarial and statistical science as applied to the problems of casualty and social insurance by means of personal intercourse, the presentation and discussion of appropriate papers, the collection of a library and such other means as may be found desirable.

Prior to the organization of the Society comparatively little technical study was given to the actuarial and underwriting problems of most of the branches of casualty insurance. With the passage of legislation providing for workmen's compensation insurance in many states during 1912, 1913 and 1914, the need of actuarial guidance became more pronounced, and 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 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. After three years' work the Committee on Compensation and Liability Loss Reserves submitted a report which has been printed in *Proceedings* No. 35 and 36. The Committee on Remarriage Table after four years' work submitted a report including tables, printed in *Proceedings* No. 40. The Special Committee on Bases of Exposure after two years' work submitted a report which is printed in *Proceedings* No. 43. The "Recommendations for Study" appear in the same number.

There are two grades of membership in the Society: Fellows and Associates; while admission to either grade is in rare cases by election, in all other cases qualification is by examination, with the additional requirement of satisfactory experience in casualty insurance work. Examinations have been held every year since organization; they are held on the third Wednesday and following Thursday in 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, comprising 179 Fellows and 125 Associates. The annual meeting of the Society is held in New York in November and the semi-annual meeting is held in May. The Society twice a year issues a publication entitled the *Proceedings* which contains original papers presented at the meetings of the Society. The *Proceedings* also contain discussions of papers, reviews of books and publications, current notes and legal notes. This Year Book is published annually by the Society and "Recommendations for Study" is a pamphlet which outlines the course of study to be followed in connection with the examinations for admission. These two booklets may be obtained free upon application to the Secretary-Treasurer, 90 John Street, New York.

CASUALTY ACTUARIAL SOCIETY

November 17, 1938

THE COUNCIL

**Officers:*	Francis S. Perryman	*President*
	Harmon T. Barber	*Vice-President*
	William J. Constable	*Vice-President*
	Richard Fondiller	*Secretary-Treasurer*
	Clarence W. Hobbs	*Editor*
	Thomas O. Carlson	*Librarian*
†*Ex-Presidents:*	Winfield W. Greene	1940
	Leon S. Senior	1942
†*Ex-Vice-Presidents:*	Ralph H. Blanchard	1940
	Charles J. Haugh	1940
	Sydney D. Pinney	1942
†*Elected:*	Arnette R. Lawrence	1939
	Ralph M. Marshall	1939
	F. Stuart Brown	1939
	G. F. Michelbacher	1940
	Norton E. Masterson	1940
	Mark Kormes	1940
	James M. Cahill	1941
	Robert V. Sinnott	1941
	Emma C. Maycrink	1941

*Terms expire at the annual meeting in November, 1939.

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

COMMITTEES

COMMITTEE ON ADMISSIONS

THOMAS F. TARBELL (CHAIRMAN)
GUSTAV F. MICHELBACHER
WILLIAM F. ROEBER
WILLIAM J. CONSTABLE
HIRAM O. VAN TUYL

AUDITING COMMITTEE

W. PHILLIPS COMSTOCK (CHAIRMAN)
HOWARD G. CRANE
LEE J. WOLFE

EDITORIAL COMMITTEE

CLARENCE W. HOBBS (CHAIRMAN)

ASSISTANT EDITORS

CLARENCE A. KULP
JACK J. SMICK
THOMAS O. CARLSON

EDUCATIONAL COMMITTEE

CLARENCE A. KULP (CHAIRMAN)
EMMA C. MAYCRINK
NORTON E. MASTERSON
WILLIAM M. CORCORAN
LLOYD A. H. WARREN
WILLIAM H. BURLING
ALBERT Z. SKELDING
CHARLES J. HAUGH
THOMAS O. CARLSON (*ex-officio*)

EXAMINATION COMMITTEE

NELS M. VALERIUS (GENERAL CHAIRMAN

FELLOWSHIP

MARK KORMES (CHAIRMAN)
RUSSELL P. GODDARD
ROBERT V. SINNOTT

ASSOCIATESHIP

HARRY V. WILLIAMS (CHAIRMAN)
ARTHUR E. CLEARY
MATTHEW H. MCCONNELL, JR.

COMMITTEE ON PAPERS

SYDNEY D. PINNEY (CHAIRMAN)
PAUL DORWEILER
JOSEPH LINDER
CLARENCE W. HOBBS (*ex-officio*)

COMMITTEE ON PROGRAM

RALPH H. BLANCHARD
WILLIAM J. CONSTABLE
WINFIELD W. GREENE
CLARENCE W. HOBBS
GUSTAV F. MICHELBACHER
LEON S. SENIOR
HARMON T. BARBER
RICHARD FONDILLER (*ex-officio*)
FRANCIS S. PERRYMAN (CHAIRMAN, (*ex-officio*)

SPECIAL COMMITTEES

Committee on Reserves for Fidelity and Surety Lines

Charles V. R. Marsh (Chairman)
Joseph J. Magrath
John A. Mills
John A. Barter
Arthur E. Thompson

Committee on Mortality for Disabled Lives

Paul Dorweiler (Chairman)
Ralph M. Marshall
Mark Kormes
Harmon T. Barber
S. Bruce Black
Charles M. Graham
Richard M. Pennock

Committee on Study of Automobile Insurance Costs

Ralph H. Blanchard (Chairman)
Francis S. Perryman
Thomas F. Tarbell
Paul Dorweiler
Harold J. Ginsburgh
Grady H. Hipp
William J. Constable

Committee on Advancement of Associates

F. Stuart Brown (Chairman)
Thomas O. Carlson
James M. Cahill

MEMBERSHIP OF THE SOCIETY, NOVEMBER 17, 1938

FELLOWS

Those marked (†) were Charter Members at date of organization, November 7, 1914.

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

Date Admitted	
*Nov. 21, 1930	Ainley, John W., The Travelers Insurance Company, 700 Main Street, Hartford, Conn.
*Nov. 13, 1931	Ault, Gilbert E., Actuary, Church Pension Fund and Church Life Insurance Corporation, 24 Exchange Place, New York.
May 23, 1924	Bailey, William B., Economist, The Travelers Insurance Company, 700 Main Street, Hartford, Conn.
*Nov. 20, 1924	Barber, Harmon T., Assistant Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 18, 1932	Barter, John L., Secretary, Hartford Accident & Indemnity Co., Hartford, Conn.
*Nov. 13, 1931	Batho, Elgin R., Assistant Actuary, Equitable Life Insurance Company of Canada, Waterloo, Ontario, Canada.
†	Benjamin, Roland, Treasurer, Fidelity & Deposit Company of Maryland and American Bonding Company, Baltimore, Md.
*Nov. 22, 1934	Berkeley, Ernest T., Superintendent, Actuarial Department, Employers Liability Assurance Corporation, Boston, Mass.
†	Black, S. Bruce, President, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass.
Apr. 20, 1917	Blanchard, Ralph H., Professor of Insurance, School of Business, Columbia University, New York.
May 24, 1921	Bond, Edward J., Jr., President, Maryland Casualty Company, Baltimore, Md.
May 19, 1915	Bradshaw, Thomas, Vice-President and General Manager, Massey-Harris Company, Limited, 915 King Street, Toronto, Canada; President, North American Life Assurance Company of Canada, Toronto, Canada.
†	Breiby, William, Vice-President, Pacific Mutual Life Insurance Company, Los Angeles, Cal.
*Nov. 18, 1927	Brown, F. Stuart, Asst. Statistician, Indemnity Insurance Co. of North America, 1600 Arch St., Philadelphia, Pa.
Oct. 22, 1915	Brown, Herbert D., Glenora, Yates County, New York.
†	Buck, George B., Consulting Actuary for Pension Funds, 150 Nassau Street, New York.
*Nov. 18, 1932	Burhans, Charles H., Standard Accident Insurance Company, 640 Temple Avenue, Detroit, Mich.

FELLOWS

Date Admitted	
Apr. 20, 1917	Burhop, William H., Executive Vice-President, Employers Mutual Liability Insurance Company, Wausau, Wis.
*Nov. 23, 1928	Burling, William H., Assistant Actuary, The Travelers Insurance Company, 700 Main Street, Hartford, Conn.
*Nov. 19, 1929	Cahill, James M., Associate Actuary, Compensation Insurance Rating Board, 125 Park Avenue, New York.
*Nov. 18, 1932	Cameron, Freeland R., Assistant Manager, Automobile Department, American Surety Company, 100 Broadway, New York.
†	Cammack, Edmund E., Vice-President and Actuary, Aetna Life Insurance Company, Hartford, Conn.
*Nov. 17, 1938	Carleton, John W., Firemen's Fund Indemnity Company, 401 California Street, San Francisco, Calif.
*Nov. 21, 1930	Carlson, Thomas O., Assistant Actuary, National Bureau of Casualty & Surety Underwriters, 60 John Street, New York.
†	Carpenter, Raymond V., Senior Actuary, Metropolitan Life Insurance Company, 1 Madison Avenue, New York.
*Nov. 13, 1936	Cleary, Arthur E., Actuary, Massachusetts Insurance Department, 100 Nashua Street, Boston, Mass.
*Nov. 15, 1918	Coates, Barrett N., Coates and Herfurth, Consulting Actuaries, 582 Market Street, San Francisco, Calif.
*Nov. 17, 1922	Coates, Clarence S., Statistician, Lumbermen's Mutual Casualty Company, Mutual Insurance Bldg., Chicago, Ill.
Oct. 27, 1916	Cogswell, Edmund S., First Deputy Commissioner of Insurance, 100 Nashua Street, Boston, Mass.
Feb. 19, 1915	Collins, Henry, Manager and Attorney, Ocean Accident & Guarantee Corporation and President, Columbia Casualty Company, 1 Park Avenue, New York.
*Nov. 23, 1928	Comstock, W. Phillips, Statistician, London Guarantee & Accident Company, 55 Fifth Avenue, New York.
*Nov. 22, 1934	Constable, William J., Secretary, Lumbermens Mutual Casualty Company, 342 Madison Avenue, New York.
*Nov. 22, 1934	Cook, Edwin A., Assistant Secretary, Interboro Mutual Indemnity Insurance Company, 270 Madison Avenue, New York.
†	Copeland, John A., Consulting Actuary, Candler Building, Atlanta, Ga.
*Nov. 18, 1925	Corcoran, William M., Consulting Actuary, c/o S. H and Lee J. Wolfe, 116 John Street, New York.
†	Cowles, Walter G., Vice-President, The Travelers Insurance Company, 700 Main Street, Hartford, Conn.
†	Craig, James D., Vice-President, Metropolitan Life Insurance Company, 1 Madison Avenue, New York.
*Nov. 19, 1926	Crane, Howard G., Treasurer, General Reinsurance Corporation, 90 John Street, New York.
*Nov. 18, 1932	Davies, E. Alfred, Budget Supervisor, Liberty Mutual Insurance Company, 125 Berkeley Street, Boston, Mass.
*Nov. 18, 1927	Davis, Evelyn M., Woodward, Ryan, Sharp & Davis, Consulting Actuaries, 90 John Street, New York.
†	Dawson, Miles M., Consulting Actuary and Counsellor at Law, 500 Fifth Avenue, New York.

FELLOWS

Date Admitted	
†	Dearth, Elmer H., 1156 Lincoln Avenue, St. Paul, Minn.
†	DeKay, Eckford C., President, Industrial Service Corporation, 84 William Street, New York.
*Nov. 17, 1920	Dorweiler, Paul, Actuary, Aetna Casualty & Surety Company, Hartford, Conn.
May 19, 1915	Dunlap, Earl O., Assistant Actuary, Metropolitan Life Insurance Company, 1 Madison Avenue, New York.
*Nov. 24, 1933	Edwards, John, Casualty Actuary, Ontario Insurance Department, 91 Arundel Avenue, Toronto, Ontario, Canada.
*Nov. 17, 1922	Elston, James S., Assistant Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 15, 1935	Eppink, Walter T., Vice-President, Merchants' Mutual Casualty Co., Casualty Insurance Building, Buffalo, New York.
†	Fackler, Edward B., Consulting Actuary, Fackler & Company, 8 West 40th Street, New York.
†	Fallow, Everett S., Actuary, Accident Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
†	Farrer, Henry, National Security Fire Insurance Company, 99 John Street, New York.
*Nov. 15, 1935	Fitzhugh, Gilbert W., Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
Feb. 19, 1915	Flanigan, James E., Agency Manager, Bankers Life Co., 225 Broadway, New York.
†	Flynn, Benedict D., Vice-President and Actuary, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
Feb. 19, 1915	Fondiller, Richard, Woodward and Fondiller, Consulting Actuaries, 90 John Street, New York.
†	Forbes, Charles S., Treasurer, Smyth, Sanford and Gerard, Inc., Insurance Brokers, 68 William Street, New York.
*Nov. 22, 1934	Fuller, Gardner V., Secretary, National Council on Compensation Insurance, 45 East 17th Street, New York.
†	Franklin, Charles H., Assistant to the President, Continental Casualty Co., 910 South Michigan Avenue, Chicago, Ill.
*Nov. 18, 1927	Frederickson, Carl H., Actuary, Canadian Underwriters Association, 44 Victoria Street, Toronto, Canada.
Feb. 25, 1916	Froggatt, Joseph, President, Joseph Froggatt & Co., Insurance Accountants, 74 Trinity Place, New York.
†	Furze, Harry, 42, Douglas Road, Glen Ridge, N. J.
Feb. 19, 1915	Garrison, Fred S., Secretary, The Travelers Indemnity Co., 700 Main Street, Hartford, Conn.
*Nov. 20, 1924	Ginsburgh, Harold J., Assistant Vice-President, American Mutual Liability Insurance Co., 142 Berkeley Street, Boston, Mass.

FELLOWS

Date Admitted	
*Nov. 21, 1930	GLENN, J. BRYAN, Chief Actuary, Railroad Retirement Board, Washington, D. C.
May 19, 1915	GLOVER, JAMES W., Edward Olney Professor of Mathematics, University of Michigan, 620 Oxford Road, Ann Arbor, Mich.
*Nov. 13, 1931	GODDARD, RUSSELL P., American Mutual Liability Insurance Company, 142 Berkeley Street, Boston, Mass.
†	GOODWIN, EDWARD S., 750 Main Street, Hartford, Conn.
*Nov. 19, 1926	GRAHAM, CHARLES M., Assistant Actuary, State Insurance Fund, 625 Madison Avenue, New York.
Oct. 22, 1915	GRAHAM, THOMPSON B., Assistant Secretary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
†	GRAHAM, WILLIAM J., Vice-President, Equitable Life Assurance Society, 393 Seventh Avenue, New York.
May 25, 1923	GRANVILLE, WILLIAM A., Vice-President, Washington National Insurance Co., 610 Church Street, Evanston, Ill.
†	GREENE, WINFIELD W., Vice-President, General Reinsurance Corporation, 90 John Street, New York.
†	HAMILTON, ROBERT C. L., (Retired) 80 Woodrow Street, Hartford, Conn.
†	HAMMOND, H. PIERSON, Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main St., Hartford, Conn.
Oct. 27, 1916	HARDY, EDWARD R., Secretary-Treasurer, Insurance Institute of America, Inc., 80 John Street, New York.
Oct. 22, 1915	HATCH, LEONARD W., (Retired), 425 Pelham Manor Road, Pelham Manor, New York.
*Nov. 19, 1926	HAUGH, CHARLES J., Actuary, National Bureau of Casualty & Surety Underwriters, 60 John Street, New York.
Nov. 17, 1920	HEATH, CHARLES E., Vice-President and Secretary, Standard Surety & Casualty Company of New York, 80 John Street, New York.
Nov. 21, 1919	HENDERSON, ROBERT, (Retired) Crown Point, Essex County, New York.
May 17, 1922	HERON, DAVID, Secretary and Chief Statistician, London Guarantee & Accident Co., Ltd., Phoenix House, King William Street, E.C. 4, London, England.
†	HILLAS, ROBERT J., (Retired) 2 Whippany Road, Morristown, N. J.
May 23, 1924	HOBBS, CLARENCE W., Special Representative of the National Association of Insurance Commissioners, National Council on Compensation Insurance, 45 East 17th Street, New York.
Oct. 22, 1915	HODGKINS, LEMUEL G., Secretary, Massachusetts Protective Association and Massachusetts Protective Life Assurance Co., Worcester, Mass.

Date Admitted	
†	Hoffman, Frederick, L., Consulting Statistician, The Biochemical Research Foundation of The Franklin Institute, Philadelphia, Pa.
Oct. 22, 1915	Holland, Charles H., Bennett & Palmer, 165 Broadway, New York.
*Nov. 22, 1934	Hooker, Russell O., Actuary, Connecticut Insurance Department, Hartford, Conn.
Nov. 18, 1932	Huebner, Solomon S., Professor of Insurance, University of Pennsylvania, Philadelphia, Pa.
†	Hughes, Charles, Auditor and Actuary, New York Insurance Department, 80 Centre Street, New York.
Nov. 19, 1929	Hull, Robert S., Office of the Actuary, Social Security Board, Washington, D. C.
†	Hunt, Burritt A., Assistant Secretary, Aetna Casualty and Surety Co., Hartford, Conn.
†	Hunter, Arthur, Vice-President and Chief Actuary, New York Life Insurance Co., 51 Madison Avenue, New York.
Nov. 18, 1921	Hutcheson, William A., Vice-President and Actuary, Mutual Life Insurance Co., 32 Nassau Street, New York.
Feb. 25, 1916	Jackson, Charles W., Consulting Actuary, Woodward and Fondiller, 90 John Street, New York.
*Nov. 19, 1929	Jackson, Henry H., Actuary, National Life Insurance Co., Montpelier, Vt.
May 19, 1915	Johnson, William C., Vice-President, Massachusetts Protective Association and Massachusetts Protective Life Assurance Co., Worcester, Mass.
Nov. 23, 1928	Jones, F. Robertson, Secretary, Association of Casualty and Surety Executives; and Secretary-Treasurer, Bureau of Personal Accident and Health Underwriters, 60 John Street, New York.
*Nov. 17, 1938	Kardonsky, Elsie, Compensation Insurance Rating Board, Pershing Square Bldg., 125 Park Avenue, New York.
Nov. 17, 1938	Kelly, Gregory C., General Manager, Pennsylvania Compensation Rating & Inspection Bureau, 938 Public Ledger Bldg., Philadelphia, Pa.
*Nov. 19, 1926	Kelton, William H., Assistant Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
†	King, Walter I., Ganse-King Estate Service, 1 Federal Street, Boston, Mass.
*Nov. 21, 1919	Kirkpatrick, A. Loomis, Insurance Editor, Chicago Journal of Commerce, 12 East Grand Avenue, Chicago, Ill.
*Nov. 24, 1933	Kormes, Mark, Asst. Director of Training & Organization, New York State Insurance Fund, 625 Madison Avenue, New York.
Nov. 23, 1928	Kulp, Clarence A., Professor of Insurance, University of Pennsylvania, Logan Hall, 36th Street and Woodland Avenue, Philadelphia, Pa.
Feb. 19, 1915	Laird, John M., Vice-President and Secretary, Connecticut General Life Insurance Co., 55 Elm Street, Hartford, Conn.
Nov. 13, 1931	La Mont, Stewart M., 305 Sheldon Avenue, New Rochelle, N. Y.
*Nov. 24, 1933	Lange, John R., Chief Actuary, Wisconsin Insurance Department, State House, Madison, Wis.

FELLOWS

Date Admitted	
Nov. 17, 1922	Lawrence, Arnette R., Special Deputy Commissioner of Banking and Insurance, 1203 Military Park Building, 60 Park Place, Newark, N. J.
†	Leal, James R., Vice-President and Secretary, Interstate Life and Accident Co., Interstate Building, 540 McCallie Avenue, Chattanooga, Tenn.
†	Leslie, William, General Manager, National Bureau of Casualty & Surety Underwriters, 60 John Street, New York.
*Nov. 20, 1924	Linder, Joseph, Consulting Actuary, c/o S. H. and Lee J. Wolfe, 116 John Street, New York.
Nov. 23, 1928	Lunt, Edward C., Vice-President, Great American Indemnity Co., 1 Liberty Street, New York.
*Nov. 13, 1936	Lyons, Daniel J., Chief Assistant Actuary, New Jersey Department of Banking and Insurance, Trenton, N. J.
†	Magoun, William N., General Manager, Massachusetts Rating and Inspection Bureau, 89 Broad Street, Boston, Mass.
*Nov. 23, 1928	Marshall, Ralph M., Assistant Actuary, National Council on Compensation Insurance, 45 East 17th Street, New York.
*Nov. 18, 1927	Masterson, Norton E., Vice-President and Actuary, Hardware Mutual Casualty Co., Stevens Point, Wis.
*Nov. 19, 1926	Matthews, Arthur N., The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
May 19, 1915	Maycrink, Emma C., Examiner, New York Insurance Department, 80 Centre Street, New York.
*Nov. 16, 1923	McClurg, D. Ralph, Secretary and Treasurer, National Equity Life Insurance Co., Little Rock, Ark.
*Nov. 15, 1935	McConnell, Matthew H., Jr., Indemnity Insurance Company of North America, 1600 Arch Street, Philadelphia, Pa.
May 23, 1919	McDougald, Alfred, Ellerslie, Beddington Gardens, Wallington Surrey, England.
*Oct. 31, 1917	McManus, Robert J., Statistician, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
†	Michelbacher, Gustav F., Vice-President and Secretary, Great American Indemnity Co., 1 Liberty Street, New York.
*Nov. 17, 1938	Miller, John H., Actuary, Monarch Life Insurance Company, Springfield, Mass.
†	Milligan, Samuel, Second Vice-President, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
*Nov. 18, 1937	Mills, John A., Secretary and Actuary, Lumbermens Mutual Casualty Co., and American Motorists Insurance Co., Mutual Insurance Bldg., Chicago, Ill.
†	Mitchell, James F., U. S. Manager, General Accident Fire and Life Assurance Corporation, Ltd., 414 Walnut Street, Philadelphia, Pa.
*Nov. 18, 1921	Montgomery, Victor, President, Pacific Employers Insurance Co., 1033 So. Hope Street, Los Angeles, Calif.
Nov. 19, 1926	Mooney, William L., (Retired), 4 Pleasant Street, West Hartford, Conn.

Date Admitted	
†	Moore, George D., Comptroller, Standard Surety & Casualty Company of New York, 80 John Street, New York.
†	Mowbray, Albert H., Consulting Actuary, 806 San Luis Road, Berkeley, Calif.
*Nov. 17, 1920	Mueller, Louis H., President, Associated Insurance Fund, 332 Pine Street, San Francisco, Calif.
†	Mullaney, Frank R., Vice-President and Secretary, American Mutual Liability Insurance Co., and Secretary, American Policyholders' Insurance Co., 142 Berkeley Street, Boston, Mass.
May 28, 1920	Murphy, Ray D., Vice-President and Actuary, Equitable Life Assurance Society, 393 Seventh Avenue, New York.
†	Nicholas, Lewis A., Assistant Secretary, Fidelity & Casualty Co., 80 Maiden Lane, New York.
*Nov. 15, 1935	Oberhaus, Thomas M., Actuarial Department, Mutual Life Insurance Co., 34 Nassau Street, New York.
†	Olifiers, Edward, Actuary and Managing Director, Previdencia do Sul, Caixa Postal 76, Porto Alegre, Brazil.
Nov. 18, 1927	O'Neill, Frank J., President, Royal Indemnity Co., and Eagle Indemnity Co., 150 William Street, New York.
†	Orr, Robert K., President, Wolverine Insurance Co., Lansing, Mich.
*Nov. 21, 1919	Outwater, Olive E., Actuary, Benefit Association of Railway Employees, 901 Montrose Avenue, Chicago, Ill.
Nov. 19, 1926	Page, Bertrand A., Vice-President, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 18, 1921	Perkins, Sanford B., Assistant Secretary, Compensation and Liability Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
Nov. 15, 1918	Perry, W. T., Deputy Manager, Ocean Accident and Guarantee Corporation, 36 Moorgate, London, E. C. 2, England.
*Nov. 21, 1930	Perryman, Francis S., Secretary, Royal Indemnity Co., and Eagle Indemnity Co., 150 William Street, New York.
Nov. 19, 1926	Phillips, Jesse S., Chairman of Board, Great American Indemnity Co., 1 Liberty Street, New York.
*Nov. 24, 1933	Pickett, Samuel C., Assistant Actuary, Connecticut Insurance Department, Hartford, Conn.
*Nov. 17, 1922	Pinney, Sydney D., Associate Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 13, 1931	Pruitt, Dudley M., Statistician, Fireman's Fund Indemnity Co., 116 John Street, New York.
May 13, 1927	Reid, A. Duncan, President and General Manager, Globe Indemnity Co., 150 William Street, New York.
May 23, 1919	Richardson, Frederick, Deputy Chairman of the Board, General Accident Fire and Life Assurance Corporation, Perth, Scotland.
*Nov. 19, 1926	Richter, Otto C., American Telephone & Telegraph Co., 195 Broadway, New York.

FELLOWS

Date Admitted	
May 24, 1921	Riegel, Robert, Professor of Statistics and Insurance, University of Buffalo, Buffalo, New York.
*Nov. 16, 1923	Roeber, William F., General Manager, National Council on Compensation Insurance, 45 East 17th Street, New York.
†	Scheitlin, Emil, Treasurer, Globe Indemnity Co., 150 William Street, New York.
†	Senior, Leon S., General Manager, Compensation Insurance Rating Board, Pershing Square Bldg., 125 Park Avenue, New York.
*Nov. 18, 1937	Shapiro, George I., First Vice President and General Manager, Public Service Mutual Casualty Ins. Corp., 570 Seventh Avenue, New York.
*Nov. 13, 1931	Silverman, David, c/o S. H. & Lee J. Wolfe, 116 John Street, New York.
*Nov. 24, 1933	Sinnott, Robert V., Hartford Accident and Indemnity Company, 690 Asylum Avenue, Hartford, Conn.
*Nov. 19, 1929	Skelding, Albert Z., Actuary, National Council on Compensation Insurance, 45 East 17th Street, New York.
*Nov. 19, 1929	Skillings, Edward S., c/o S. H. and Lee J. Wolfe, 116 John Street, New York.
*Nov. 18, 1932	Smick, Jack J., National Council on Compensation Insurance, 45 East 17th Street, New York.
*Nov. 24, 1933	St. John, John B., Social Security Board, Bureau of Old Age Insurance, Washington, D. C.
Nov. 18, 1927	Stone, Edward C., U. S. General Manager and Attorney, Employers' Liability Assurance Corporation, Limited, and President, American Employers' Insurance Company, 110 Milk Street, Boston, Mass.
Feb. 25, 1916	Strong, Wendell M., Associate Actuary, Mutual Life Insurance Co., 32 Nassau Street, New York.
Oct. 22, 1915	Strong, William Richard, No. 4 "Sheringham," Cotham Road, Kew, Victoria, Australia.
*Nov. 17, 1920	Tarbell, Thomas F., Actuary, Casualty Actuarial Department. The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
†	Thompson, John S., Vice-President and Mathematician, Mutual Benefit Life Insurance Co., 300 Broadway, Newark N. J.
†	Train, John L., President and General Manager, Utica Mutual Insurance Co., 185 Genesee Street, Utica, New York.
Nov. 17, 1922	Traversi, Antonio T., Consulting Actuary and Accountant, London Bank Chambers, Martin Place, Sydney, Australia.
*Nov. 23, 1928	Valerius, Nels M., Accident & Liability Department, Aetna Life Insurance Co., Hartford, Conn.
*Nov. 21, 1919	Van Tuyl, Hiram O., Chief Accountant, London Guarantee & Accident Co., 55 Fifth Avenue, New York.
*Nov. 17, 1920	Waite, Alan W., Assistant Secretary, Accident and Liability Department, Aetna Life Insurance Co., Hartford, Conn.
*Nov. 15, 1935	Waite, Harry V., Statistician, The Travelers Fire Insurance Co., 700 Main Street, Hartford, Conn.

FELLOWS

Date Admitted	
*Nov. 18, 1925	Warren, Lloyd A. H., Professor of Actuarial Science, University of Manitoba, 64 Niagara Street, Winnipeg, Manitoba, Canada.
†	Whitney, Albert W., Consulting Director, National Conservation Bureau, Association of Casualty & Surety Executives, 60 John Street, New York.
*Nov. 15, 1935	Williams, Harry V., Statistician, National Council on Compensation Insurance, 45 East 17th Street, New York.
*Nov. 13, 1931	Wittick, Herbert E., Secretary, Pilot Insurance Co., 199 Bay Street, Toronto, Canada.
†	Wolfe, Lee J., Consulting Actuary, 116 John Street, New York.
May 24, 1921	Wood, Arthur B., President and Managing Director, Sun Life Assurance Company of Canada, Montreal, Canada.
*Nov. 17, 1920	Young, Charles N., Engineering and Inspection Division, Eureka Casualty Company, 4007 Chester Avenue, Philadelphia, Pa.

ASSOCIATES

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

Numerals indicate Fellowship examination parts credited.

Date Enrolled	
May 23, 1924	Acker, Milton, Manager, Compensation and Liability Department, National Bureau of Casualty and Surety Underwriters, 60 John Street, New York.
*Nov. 15, 1918	Ackerman, Saul B., Professor of Insurance, New York University, 90 Trinity Place, New York.
Apr. 5, 1928	Allen, Austin F., Executive Vice-President, Texas Employers Insurance Association and Employers Casualty Co., Dallas, Texas.
Nov. 15, 1918	Ankers, Robert E., Secretary and Treasurer, Continental Life Insurance Co., Investment Building, Washington, D. C.
*Nov. 21, 1930	Archibald, A. Edward, Actuary, Volunteer State Life Insurance Company, Chattanooga, Tenn. (I, II.)
*Nov. 24, 1933	Barron, James C., General Reinsurance Corporation, 90 John Street, New York. (I, II, IV.)
*Nov. 23, 1928	Bateman, Arthur E., Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass. (I, II.)
*Nov. 18, 1925	Bittel, W. Harold, Associate Actuary, Woodward, Ryan, Sharp, & Davis, 90 John Street, New York.
Nov. 17, 1920	Black, Nellas C., Statistician, Maryland Casualty Co., Baltimore, Md.
*Nov. 22, 1934	Bomse, Edward L., National Bureau of Casualty & Surety Underwriters, 60 John Street, New York.
*Nov. 23, 1928	Bower, Perry S., Great West Life Assurance Company, Winnipeg, Manitoba, Canada.
*Nov. 15, 1935	Brereton, Cloudesley R., Dominion Department of Insurance, Ottawa, Ontario, Canada.
*Nov. 15, 1918	Brunnquell, Helmuth G., Assistant Actuary, The Northwestern Mutual Life Insurance Co., Milwaukee, Wis.
*Oct. 22, 1915	Buffler, Louis, Director, Underwriting Department, State Insurance Fund, 625 Madison Avenue, New York.
*Nov. 20, 1924	Bugbee, James M., Maryland Casualty Co., Baltimore, Md.
Mar. 31, 1920	Burt, Margaret A., Office of George B. Buck, Consulting Actuary, 150 Nassau Street, New York.
Nov. 17, 1922	Cavanaugh, Leo D., Executive Vice-President and Actuary, Federal Life Insurance Co., 168 N. Michigan Avenue, Chicago, Ill.
*Nov. 18, 1927	Chen, S. T., Actuary, China United Assurance Society, 104 Bubbling Well Road, Shanghai, China.
*Nov. 18, 1927	Conrod, Stuart F., Associate Actuary, Loyal Protective Life Insurance Co., 38 Newbury Street, Boston, Mass.
May 23, 1929	Cowee, George A., Vice-President, Liberty Mutual Insurance Co., 175 Berkeley Street, Boston, Mass.

ASSOCIATES

Date Enrolled	
*Nov. 24, 1933	CRAWFORD, WILLIAM H., Assistant Secretary, Fireman's Insurance Co. of Newark, N. J. & Affiliated Fire & Casualty Co's Western Dept., 844 Rush Street, Chicago, Ill. (I, II.)
*Nov. 18, 1932	CRIMMINS, JOSEPH B., Metropolitan Life Insurance Co., 1 Madison Avenue, New York. (I, II.)
*Nov. 18, 1925	DAVIS, MALVIN E., Assistant Actuary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
*Nov. 24, 1933	DAVIS, REGINALD S., Assistant Comptroller, State Compensation Insurance Fund, San Francisco, Calif. (I, II.)
May 25, 1923	ECONOMIDY, HARILAUS E., Comptroller, United Employers Casualty Co., Southern Underwriters Bldg., Houston, Texas.
June 5, 1925	EGER, FRANK A., Secretary-Comptroller, Insurance Company of North America and Affiliated Companies, 1600 Arch Street, Philadelphia, Pa.
*Nov. 17, 1938	ELLIOTT, GEORGE B., Compensation Actuary, Pennsylvania Insurance Department, 938 Public Ledger Building, Philadelphia, Pa.
*Nov. 18, 1937	FARLEY, JARVIS, Assistant Treasurer and Actuary, Massachusetts Indemnity Co., 632 Beacon Street, Boston, Mass. (I.)
*Nov. 16, 1923	FITZ, L. LEROY, Group Insurance Department, Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, II.)
*Nov. 18, 1927	FITZGERALD, AMOS H., Assistant Actuary, The Prudential Insurance Company of America, Newark, N. J. (I, II.)
*Nov. 16, 1923	FLEMING, FRANK A., Actuary, American Mutual Alliance, 60 East 42nd Street, New York.
Nov. 20, 1924	FROBERG, JOHN, Manager, California Inspection Rating Bureau, 114 Sansome Street, San Franciso, Calif.
*Nov. 13, 1936	FRUECHTEMEYER, FRED J., Liberty Mutual Insurance Co., 175 Berkeley Street, Boston, Mass. (I, II.)
*Nov. 19, 1929	FURNIVALL, MAURICE L., Assistant Actuary, Accident Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn. (I, II.)
*Nov. 22, 1934	GATELY, JOHN J., General Reinsurance Corporation, 90 John Street, New York. (I, II.)
*Nov. 18, 1932	GETMAN, RICHARD A., Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn. (I, II.)
*Nov. 17, 1922	GIBSON, JOSEPH P., JR., President and General Manager, Excess Underwriters, Inc., 90 John Street, New York.
*Nov. 16, 1923	GILDEA, JAMES F., The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
Nov. 19, 1929	GORDON, HAROLD R., Executive Secretary, Health & Accident Underwriters Conference, 176 West Adams Street, Chicago, Ill.
*Nov. 18, 1927	GREEN, WALTER C., Consulting Actuary, 135 South LaSalle Street, Chicago, Ill.
*Nov. 15, 1935	GUERTIN, A. N., Actuary, New Jersey Department of Banking and Insurance, Trenton, N. J. (I, II.)
*Nov. 18, 1921	HAGGARD, ROBERT E., Superintendent, Permanent Disability Rating Department, Industrial Accident Commission, State Building, San Francisco, Calif.
*Nov. 17 1922	HALL, HARTWELL L., Associate Actuary, Connecticut Insurance Department, Hartford, Conn.

ASSOCIATES

Date Enrolled	
*Nov. 13, 1936	Ham, Hugh P., British America Assurance Co., 807 Electric Railway Chambers,;Winnipeg, Manitoba, Canada. (I, II.)
Mar. 24, 1932	Harris, Scott, Vice-President, Joseph Froggatt & Co., 74 Trinity Place, New York.
*Mar. 25, 1924	Hart, Ward Van Buren, Assistant Actuary, Connecticut General Life Insurance Co., Hartford, Conn. (I, II.)
Nov. 21, 1919	Haydon, George F., General Manager, Wisconsin Compensation Rating & Inspection Bureau, 715 N. Van Buren Street, Milwaukee, Wis.
Nov. 17, 1927	Hipp, Grady H., Actuary, State Insurance Fund, 625 Madison Avenue, New York.
*Oct. 31, 1917	Jackson, Edward T., Statistician, General Accident Fire & Life Assurance Corporation, 421 Walnut Street, Philadelphia, Pa.
Nov. 19, 1929	Jacobs, Carl N., President, Hardware Mutual Casualty Co., Stevens Point, Wis.
*Nov. 18, 1921	Jensen, Edward S., Asst. Secretary, Occidental Life Insurance Co., Los Angeles, Calif. (III, IV.)
Nov. 21, 1930	Jones, H. Lloyd, Deputy General Attorney, of Phoenix-London Group, Vice-President, Phoenix Indemnity Company, and Deputy United States Manager, London Accident & Guarantee Co., 55 Fifth Avenue, New York.
*Nov. 19, 1935	Jones, Harold M., Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass. (I, II.)
*Nov. 21, 1919	Jones, Loring D., Assistant Director, State Insurance Fund, 625 Madison Avenue, New York.
*Nov. 17, 1922	Kirk, Carl L., Assistant U. S. Manager, Zurich General Accident & Liability Insurance Co., 135 South LaSalle Street, Chicago, Ill.
*Nov. 15, 1935	Kitzrow, E. W., Vice-President, Hardware Mutual Casualty Co., Stevens Point, Wis. (I, II.)
*Nov. 18, 1937	Koloditzky, Morris, State Insurance Fund, 625 Madison Avenue, New York. (I.)
*Nov. 18, 1937	Lassow, William, State Insurance Fund, 625 Madison Avenue, New York.
*Nov. 17, 1938	Lieblein, Julius, New York State Insurance Fund, 625 Madison Avenue, New York.
*Nov. 13, 1931	MacKeen, Harold E., The Travelers Insurance Co., 700 Main Street, Hartford, Conn. (I, II.)
Mar. 24, 1932	Magrath, Joseph J., Executive Assistant, Chubb & Sons, 90 John Street, New York.
*Nov. 18, 1925	Malmuth, Jacob, Examiner, New York Insurance Department, 80 Centre Street, New York.
Mar. 24, 1927	Marsh, Charles V. R., Comptroller and Assistant Treasurer, Fidelity & Deposit Co. and American Bonding Co., Baltimore, Md.
*Nov. 13, 1936	Mayer, William H., Jr., Actuarial Department, Metropolitan Life Insurance Co., 1 Madison Avenue, New York.
*Nov. 17, 1922	McIver, Rosswell A., Actuary, Washington National Insurance Co., 610 Church Street, Evanston, Ill.

ASSOCIATES

Date Enrolled	
*Nov. 17, 1922	Michener, Samuel M., Assistant Actuary, Columbus Mutual Life Insurance Co., 580 East Broad Street, Columbus, Ohio, (I, II.)
*Nov. 13, 1931	Miller, Henry C., Comptroller, State Compensation Insurance Fund, 450 McAllister Street, San Francisco, Calif. (I, II.)
*Nov. 19, 1926	Milne, John L., Actuary, Presbyterian Ministers' Fund for Life Insurance, 1805 Walnut Street, Philadelphia, Pa.
*Nov. 18, 1937	Minor, Eduard H., Actuarial Department, Metropolitan Life Insurance Company, 1 Madison Avenue, New York.
Nov. 17, 1922	Montgomery, John C., Secretary and Assistant Treasurer, Bankers Indemnity Insurance Co., 15 Washington Street, Newark, N. J.
May 25, 1923	Moore, Joseph P., President, North American Accident Insurance Co., 275 Craig Street, W., Montreal, Canada.
*Nov. 21, 1919	Mothersill, Rolland V., President, Anchor Casualty Co., Anchor Insurance Building, 758 So. Mississippi River Boulevard, St. Paul, Minn. (III, IV.)
*Nov. 18, 1937	Myers, Robert J., Office of the Actuary, Social Security Board, Washington, D. C.
*Nov. 19, 1929	Muller, Fritz, Director, Agrippina Life Insurance Stock Co., Berlin, W. 30 Mackensenstr. 16, Germany.
*Nov. 15, 1935	Nelson, S. Tyler, Utica Mutual Insurance Co., 185 Genesee Street, Utica, New York.
*Oct. 27, 1916	Newell, William, Secretary, Assigned Risk Pool, 60 John Street, New York. (I, II.)
*Nov. 23, 1928	Newhall, Karl, Group Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 18, 1925	Nicholson, Earl H., Actuary Joseph Froggatt & Co., 74 Trinity Place, New York.
May 23, 1919	Otto, Walter E., President, Michigan Mutual Liability Co., 163 Madison Avenue, Detroit, Mich.
*Nov. 19, 1926	Overholser, Donald M., 803 East 35th Street, Brooklyn, N. Y.
Nov. 20, 1924	Pennock, Richard M., Actuary, Pennsylvania Manufacturer, Association Casualty Insurance Co., Finance Building, Philadelphia, Pa.
Nov. 19, 1929	Phillips, John H., Vice-President and Actuary, Employers' Mutual Liability Insurance Co., Wausau, Wis.
*Nov. 17, 1920	Pike, Morris, Vice-President and Actuary, Union Labor Life Insurance Co., 570 Lexington Avenue, New York.
*Nov. 23, 1928	Piper, Kenneth B., Actuary, Provident Life and Accident Insurance Co., Chattanooga, Tenn. (I, II.)
*Nov. 18, 1927	Poissant, William A., The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Nov. 17, 1922	Poorman, William F., Vice-President and Actuary, Central Life Assurance Society, Fifth and Grand Avenues, Des Moines, Iowa. (I, II.)
*Nov. 13, 1936	Potofsky, Sylvia, State Insurance Fund, 625 Madison Avenue, New York. (I.)

ASSOCIATES

Date Enrolled	
Nov. 17, 1922	Powell, John M., President, Loyal Protective Insurance Co. and Loyal Life Insurance Co., 38 Newbury Street, Boston, Mass. (I, II.)
*Nov. 15, 1918	Raywid, Joseph, President, Joseph Raywid & Co., Inc., 90 William Street, New York.
Nov. 19, 1932	Richardson, Harry F., Secretary-Treasurer, National Council on Compensation Insurance, 45 East 17th Street, New York.
*Nov. 18, 1932	Roberts, James A., Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn. (I, II.)
*Nov. 21, 1919	Robbins, Rainard B., Vice-President and Secretary, Teachers Insurance and Annuity Association, 522 Fifth Avenue, New York. (I, II.)
*Nov. 18, 1927	Sarason, Harry M., Assistant Actuary, General American Life Insurance Co., 1501 Locust Street, St. Louis, Mo.
Nov. 16, 1923	Sawyer, Arthur, Globe Indemnity Co., 150 William Street, New York.
*Nov. 20, 1930	Sevilla, Exequiel S., Actuary, National Life Insurance Co., P. O. Box 2856, Manila, Philippine Islands.
*Nov. 20, 1924	Sheppard, Norris E., Lecturer in Mathematics and Mechanics, University of Toronto, Toronto, Canada. (I, II.)
Nov. 15, 1918	Sibley, John L., Assistant Secretary, United States Casualty Co., 60 John Street, New York.
*Nov. 18, 1921	Smith, Arthur G., Assistant General Manager and Actuary, Compensation Insurance Rating Board, Pershing Square Bldg., 125 Park Avenue, New York.
*Nov. 19, 1926	Somerville, William F., Assistant Secretary, St. Paul Mercury Indemnity Co., St. Paul, Minn. (I, II.)
*Nov. 18, 1925	Sommer, Armand, Assistant to Vice-President, Continental Casualty Co., 910 So. Michigan Avenue, Chicago, Ill.
*Nov. 18, 1927	Speers, Alexander A., Secretary and Actuary, Michigan Life Insurance Co., Detroit, Mich.
*Nov. 15, 1918	Spencer, Harold S., Aetna Life Insurance Co., Hartford, Conn.
Nov. 20, 1924	Stellwagen, Herbert P., Vice-President, Indemnity Insurance Company of North America, 1600 Arch Street, Philadelphia, Pa.
*Nov. 16, 1923	Stoke, Kendrick, Actuary, Michigan Mutual Liability Company 163 Madison Avenue, Detroit, Mich.
*Nov. 21, 1930	Sullivan, Walter F., Associated Indemnity Corporation, 332 Pine Street, San Francisco, Calif. (I.)
Mar. 23, 1921	Thompson, Arthur E., Chief Statistician, Globe Indemnity Co., 150 William Street, New York.
*Nov. 21, 1919	Trench, Frederick H., Manager, Underwriting Department, Utica Mutual Insurance Co., 185 Genesee Street, Utica, N. Y. (I, II.)
*Nov. 20, 1924	Uhl, M. Elizabeth, National Bureau of Casualty & Surety Underwriters, 60 John Street, New York. (I, II.)
May 23, 1919	Warren, Charles S., Secretary, Massachusetts Automobile Rating and Accident Prevention Bureau, 89 Broad Street, Boston, Mass.
Nov. 18, 1925	Washburn, James H., Actuary, 1501 Gale Lane, Nashville, Tenn.
*Nov. 18, 1921	Waters, Leland L., Secretary-Treasurer, National Assurance Corporation, Lincoln, Neb. (I, II.)

ASSOCIATES

Date Enrolled	
*Nov. 18, 1932	Weinstein, Max S., Examiner, New York Insurance Department, 80 Centre Street, New York.
*Nov. 18, 1921	Welch, Eugene R., Associated Indemnity Corporation, 332 Pine Street, San Francisco, Calif.
*Nov. 18, 1925	Wellman, Alexander C., Vice-President and Actuary, Protective Life Insurance Co., Birmingham, Ala.
*Nov. 21, 1930	Wells, Walter I., Supervisor of Applications, Massachusetts Protective Association, Worcester, Mass. (I, II.)
Mar. 21, 1929	Wheeler, Charles A., Chief Examiner of Casualty Companies, New York Insurance Department, 80 Centre Street, New York.
*Nov. 18, 1927	Whitbread, Frank G., Assistant Actuary, Great West Life Assurance Co., Winnipeg, Manitoba, Canada.
*Oct. 22, 1915	Williamson, William R., Actuarial Consultant, Social Security Board, Washington, D. C.
*Oct. 22, 1915	Wood, Donald M., Childs & Wood, General Agents, Royal Indemnity Company, 175 W. Jackson Blvd., Chicago, Ill.
*Nov. 18, 1937	Wood, Donald M., Jr., Childs & Wood, 175 West Jackson Blvd., Chicago, Ill.
*Nov. 18, 1927	Wood, Milton J., Assistant Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, Conn.
*Oct. 22, 1915	Woodman, Charles E., Assistant Manager, Ocean Accident & Guarantee Corporation and Comptroller, Columbia Casualty Co., 1 Park Avenue, New York.
*Nov. 22, 1934	Woodward, Barbara H., Examiner, New York Insurance Department, 80 Centre Street, New York.
*Nov. 18, 1925	Wollery, James M., Actuary, North Carolina Insurance Dept., Raleigh, N. C.
*Nov. 17, 1922	Young, Floyd E., Actuary, Montana Life Insurance Co., Helena, Montana.

SCHEDULE OF MEMBERSHIP, NOVEMBER 17, 1938

	Fellows	Associates	Total
Membership, November 18, 1937..........	179	130	309
Additions:			
By reinstatment	1	..	1
By examination.......................	3	2	5
	183	132	315
Deductions:			
By death............................	4	..	4
By withdrawal.......................	..	4	4
By transfer from Associate to Fellow	..	3	3
Membership, November 17, 1938..........	179	125	304

OFFICERS OF THE SOCIETY

Since Date of Organization

Elected	*President*	*Vice-Presidents*	
1914–1915	*I. M. Rubinow	A. H. Mowbray	B. D. Flynn
1916–1917	J. D. Craig	*J. H. Woodward	*H. E. Ryan
1918	*J. H. Woodward	B. D. Flynn	G. D. Moore
1919	B. D. Flynn	G. D. Moore	W. Leslie
1920	A. H. Mowbray	W. Leslie	L. S. Senior
1921	A. H. Mowbray	L. S. Senior	*H. E. Ryan
1922	*H. E. Ryan	G. F. Michelbacher	E. E. Cammack
1923	W. Leslie	G. F. Michelbacher	E. E. Cammack
1924–1925	G. F. Michelbacher	S. B. Perkins	R. H. Blanchard
1926–1927	S. B. Perkins	G. D. Moore	T. F. Tarbell
1928–1929	G. D. Moore	S. D. Pinney	P. Dorweiler
1930–1931	T. F. Tarbell	*R. A. Wheeler	W. W. Greene
1932–1933	P. Dorweiler	W. F. Roeber	L. S. Senior
1934–1935	W. W. Greene	R. H. Blanchard	C. J. Haugh
1936–1937	L. S. Senior	S. D. Pinney	F. S. Perryman
1938	F. S. Perryman	H. T. Barber	W. J. Constable

Secretary-Treasurer	
1914–1917	C. E. Scattergood
1918–1938	R. Fondiller

Editor†	
1914	W. W. Greene
1915–1917	R. Fondiller
1918	W. W. Greene
1919–1921	G. F. Michelbacher
1922–1923	O. E. Outwater
1924–1932	R. J. McManus
1933–1938	C. W. Hobbs

Librarian†	
1914	W. W. Greene
1915	R. Fondiller
1916–1921	L. I. Dublin
1922–1924	E. R. Hardy
1925–1937	W. Breiby
1937–1938	T. O. Carlson

*Deceased.

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

DECEASED FELLOWS

Date of Death	
Aug. 22, 1937	BROSMITH, WILLIAM, Vice-President and General Counsel, The Travelers Insurance Company and The Travelers Indemnity Company, Hartford, Conn.
June 4, 1934	BUDLONG, WILLIAM A., Superintendent of Claims, Commercial Travelers Mutual Accident Association, Utica, N. Y.
Mar. 30, 1935	BURNS, F. HIGHLAND, Chairman of the Board, Maryland Casualty Co., Baltimore, Md.
Feb. 4, 1920	CASE, GORDON, Office of F. J. Haight, Consulting Actuary, Indianapolis, Ind.
July 23, 1921	CONWAY, CHARLES T., Vice-President, Liberty Mutual Insurance Co., Boston, Mass.
Jan. 20, 1922	CRAIG, JAMES MCINTOSH, Actuary, Metropolitan Life Insurance Co., New York.
Sept. 2, 1921	CRUM, FREDERICK S., Assistant Statistician, Prudential Insurance Co., Newark, N. J.
June 21, 1931	DAWSON, ALFRED BURNETT, Consulting Actuary, New York.
Jan. 18, 1929	DEUTSCHBERGER, SAMUEL, Actuary, New York Insurance Department, New York.
July 9, 1922	DOWNEY, EZEKIEL HINTON, Compensation Actuary, Pennsylvania Insurance Department, Harrisburg, Pa.
Oct. 30, 1924	FACKLER, DAVID PARKS, Consulting Actuary, New York.
July 15, 1938	FELLOWS, CLAUDE W., President, Associated Indemnity Co., San Francisco, Calif.
July 25, 1931	FRANKEL, LEE K., Second Vice-President, Metropolitan Life Insurance Co., New York.
Aug. 22, 1925	GATY, THEODORE E., Vice-President and Secretary, Fidelity & Casualty Co., New York.
April 15, 1937	GRAHAM, GEORGE, Executive Vice-President, Manhattan Life Insurance Company, New York.
Oct. 28, 1936	GOULD, WILLIAM H., Consulting Actuary, New York.
Mar. 18, 1932	HINSDALE, FRANK WEBSTER, Secretary, Workmen's Compensation Board, Vancouver, B. C., Canada.
Jan. 22, 1937	HODGES, CHARLES E., Chairman of the Board, American Mutual Liability Insurance Company, Boston, Mass.
Mar. 10, 1924	HOOKSTADT, CARL, Expert, U. S. Bureau of Labor Statistics, Washington, D. C.
Feb. 11, 1928	KEARNEY, THOMAS P., Manager, State Compensation Insurance Fund, Denver, Col.
Oct. 15, 1918	KIME, VIRGIL MORRISON, Actuary, Casualty Departments, The Travelers Insurance Co., Hartford, Conn.
Aug. 3, 1933	KOPF, EDWIN W., Assistant Statistician, Metropolitan Life Insurance Co., New York.
Dec. 9, 1927	LANDIS, ABB, Consulting Actuary, Nashville, Tenn.
Aug. 11, 1938	LITTLE, JAMES FULTON, Vice-President and Actuary, Prudential Life Insurance Company, Newark, N. J.
Nov. 29, 1933	MEAD, FRANKLIN B., Vice-President, The Lincoln National Life Insurance Co., Fort Wayne, Ind.
Mar. 27, 1931	MELTZER, MARCUS, Statistician, National Bureau of Casualty & Surety Underwriters, New York.
Jan. 18, 1936	MILLER, DAVID W., Garden City, Long Island, New York.

DECEASED FELLOWS—Continued

Date of Death	
June 8, 1937	Moir, Henry, Chairman of Finance Committee and Director, United States Life Insurance Company, New York.
Aug. 20, 1915	Montgomery, William J., State Actuary, Boston, Mass.
Dec. 19, 1929	Morris, Edward Bontecou, Actuary, Life Department, The Travelers Insurance Co., Hartford, Conn.
Oct. 12, 1937	Otis, Stanley, Counsellor at Law, Manager, Otis Service, New York.
July 24, 1915	Phelps, Edward B., Editor, The American Underwriter, New York.
July 30, 1921	Reiter, Charles Grant, Assistant Actuary, Metropolitan Life Insurance Co., New York.
Mar. 21, 1938	Remington, Charles H., Pan American Casualty Company, Miami, Fla.
Sept. 1, 1936	Rubinow, Isaac M., Secretary, Independent Order of B'nai B'rith, Cincinnati, Ohio.
Nov. 2, 1930	Ryan, Harwood Eldridge, Consulting Actuary, New York.
Feb. 26, 1921	Saxton, Arthur F., Chief Examiner of Casualty Companies, New York Insurance Department, New York.
June 22, 1938	Smith, Charles Gordon, Manager, New York State Fund, New York.
May 9, 1920	Stone, John T., President, Maryland Casualty Co., Baltimore, Md.
July 19, 1934	Sullivan, Robert J., Vice-President, The Travelers Insurance Co., and The Travelers Indemnity Co., Hartford, Conn.
May 25, 1935	Thompson, Walter H., Kemper Insurance Organization, Chicago, Illinois.
Feb. 25, 1933	Toja, Guido, Director General, Institute Nazionale Delle Assicurazioni, Rome, Italy.
May 8, 1935	Welch, Archibald A., President, Phoenix Mutual Life Insurance Co., Hartford, Conn.
Aug. 26, 1932	Wheeler, Roy A., Vice-President and Actuary, Liberty Mutual Insurance Co., Boston, Mass.
Dec. 31, 1927	Wolfe, S. Herbert, Consulting Actuary, New York.
May 15, 1928	Woodward, Joseph H., Consulting Actuary, New York.
Oct. 23, 1927	Young, William, Actuary, New York Life Insurance Co., New York.

DECEASED ASSOCIATES

Date of Death	
Feb. 10, 1920	Baxter, Don. A., Deputy Insurance Commissioner, Michigan Insurance Department, Lansing, Mich.
Mar. 8, 1931	Hall, Leslie Le Vant, Secretary-Treasurer, National Bureau of Casualty & Surety Underwriters, New York.
Dec. 20, 1920	Lubin, Harry, Assistant Actuary, State Industrial Commission, New York.
May. 8, 1937	Voogt, Walter G., Treasurer and Director, Associated Indemnity Corporation and Associated Fire and Marine Insurance Company, San Francisco, Cal.
Feb. 23, 1937	Watson, James J., President and General Manager, Allied Underwriters Corporation, Dallas, Texas.
June 11, 1930	Wilkinson, Albert Edward, Actuary, Standard Accident Insurance Co., Detroit, Mich.

STUDENTS

This list includes candidates who have passed one or more parts of the Associateship Examinations during the last three years.

Those who are listed as having passed all four parts have not yet been enrolled as Associates of the Society by reason of the terms of examination rule IV which reads:

> "Upon the candidate having passed all four parts, he will be enrolled as an Associate, provided he presents evidence of at least one year of experience in actuarial, accounting or statistical work in casualty insurance offices, or in the teaching of casualty insurance science at a recognized college or university, or other evidence of his knowledge of actuarial, accounting or statistical work as is satisfactory to the Council."

Upon the completion of the requirements of the Council in respect to each of these candidates, they will be enrolled as Associates.

The numerals after each name indicate the parts of Associateship Examinations passed.

AGUELE, ANDREW, Thierfield & Hirsch, Inc., 950 Hart Street, Brooklyn, N. Y. (I.)

ALLEN, EDWARD S., National Bureau of Casualty and Surety Underwriters, 60 John Street, New York. (II.)

ANDERSON, PHILIP D., John Hancock Mutual Life Insurance Company, 197 Clarendon Street, Boston, Mass. (I, III, IV.)

ARNOLD, KENNETH J., 28 East Raleigh Avenue, West New Brighton, New Ycrk. (II.)

ARTHUR, CHARLES R., Manufacturers Life Insurance Co., 100 Bloor Street, E., Toronto, Ontario, Canada. (I, II, III, IV.)

BAILEY, ROBERT C., Sovereign Life Assurance Co., Winnipeg, Manitoba, Canada. (I, II, III, IV.)

BAKER, ROBERT W., Manufacturers Life Insurance Co., 100 Bloor Street, E., Toronto, Ontario, Canada. (I, II, III, IV.)

BARNHART, LYLE H., Illinois Insurance Department, Capitol Bldg., Springfield, Ill. (I, II.)

BART, ROBERT D., (American) Lumbermens Mutual Casualty Company, Mutual Insurance Building, Chicago, Illinois. (II.)

BATHO, BRUCE, Illinois Insurance Department, Capitol Bldg., Springfield, Ill. (I, II, III, IV.)

BOIG, FLETCHER S., Employers Liability Assurance Corporation, 110 Milk Street, Boston, Mass. (I, II.)

BOYER, HENRY F., 1241 Illinois Ave., Pittsburgh, Pa., (II, III.)

BROCK, STANLEY E., Equitable Life Insurance Company of Canada, Waterloo, Ontario, Canada. (I, II, III, IV.)

BUCKMAN, ALFRED L., Occidental Life Insurance Company, 756 S. Spring Street, Los Angeles, Cal. (I, II, III, IV.)

CAMERON, WALTER G., Firemen's Fund Indemnity Company, 401 California Street, San Francisco, Cal. (II.)

CAMPBELL, GEORGE C., Metropolitan Life Insurance Co., One Madison Avenue, New York. (I, II, III, IV.)

CANNON, LESLIE A., Great West Life Assurance Co., Winnipeg, Manitoba, Canada. (I, II, III, IV.)

CHODORCOFF, WILLIAM, Assistant Mathematician, Prudential Insurance Company, Newark, New Jersey. (I, II, III, IV.)

CIVIN, PAUL, Student, University of Buffalo, Buffalo, New York. (I, II, III, IV.)

STUDENTS

CODY, DONALD D., Equitable Life Assurance Society, 393 7th Avenue, New York. (I, III, IV.)

COHEN, SYDNEY L., Office of S. H. and Lee J. Wolfe, 116 John Street, New York. (I.)

D'ALESSIO, WAGNER, 2240 Broderick Street, San Francisco, Cal. (II.)

DANIELS, ARTHUR C., Office of Fackler & Company, 8 West 40th Street, New York. (I, II, III, IV.)

DAVIS, ELMER W. L., The Columbian National Life Insurance Company, 77 Franklin Street, Boston, Mass. (IV.)

DIORIO, GENE, 1504 60th Street, Brooklyn, N. Y. (I.)

ENGLAND, ARTHUR W., Office of Coates and Herfurth, Consulting Actuaries, 582 Market Street, San Francisco, Calif. (I, II, III, IV.)

FEAY, MAURICE F., Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, II, III, IV.)

FELDMAN, ISRAEL, Metropolitan Life Insurance Co., Ottawa, Ontario, Canada. (I, II, III, IV.)

FOOTE, JEAN VIVIAN, 42 Hochelaga Street, W., Moose Jaw, Sask., Canada. (I, II, III, IV.)

GODDARD, DAVID G., The Travelers Insurance Company, 315 Montgomery Street, San Francisco, Cal. (I, II, III, IV.)

GOULD, WILLIAM, Actuarial Division, Metropolitan Life Insurance Co., One Madison Avenue, New York. (I, II, III, IV.)

GRODEN, GERALD D., Student, University of Buffalo, Buffalo, N. Y. (I.)

GROSSMAN, ELI, United States Life Insurance Company, 101 Fifth Avenue, New York. (I, II, III, IV.)

GURALNICK, LILLIAN, State Insurance Fund, 625 Madison Avenue, New York. (II.)

HAGEN, OLAF E., Metropolitan Life Insurance Company, One Madison Avenue, New York. (I, IV.)

HELPHAND, BEN, Student, University of Iowa, Iowa City, Iowa. (I.)

HENRY, MALCOLM H., Statistician, Office of State Budget Director, Lansing, Mich. (II.)

HIBBARD, DONALD L., Group Insurance Department, Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, II, III, IV.)

HUNTON, T. F., Canadian Underwriters Association, 44 Victoria Street, Toronto 2, Ontario, Canada. (I, III, IV.)

JOFFE, SAMUEL W., 1951 North 32nd Street, Philadelphia, Pa. (I, II, III, IV.)

JOHNSON, ROGER A., JR., Compensation Insurance Rating Board, 125 Park Avenue, New York. (II, III, IV.)

JONES, CHARLES H., Metropolitan Life Insurance Company, One Madison Avenue, New York. (I, II, III, IV.)

KEALE, HENRY F., Teachers' Retirement System, 139 Center Street, New York. (I.)

KIRKPATRICK, THOMAS H., London Life Insurance Company, London, Ontario, Canada. (I, II, III, IV.)

KLEINBERG, SAMUEL L., 813 Park Avenue, Brooklyn, New York. (I, II, III, IV.)

KNOWLES, FREDERICK, Commercial Union Assurance Company, Ltd., 388 St. James Street, Canada. (I, II, III, IV.)

KWASHA, HERMAN, c/o Marsh & McLennan, 70 Pine Street, New York. (I, II, III, IV.)

LAING, CHARLES B., Prudential Insurance Company, Newark, N. J. (I, II, III, IV.)

LAIRD, W. DARRELL, Actuary, Monarch Life Assurance Company, Winnipeg, Manitoba, Canada. (I, II, III, IV.)

STUDENTS

LEARSON, RICHARD J., Associate Actuary, Western & Southern Life Insurance Co., Cincinnati, Ohio. (I, II, III, IV.)

LEHANE, LEO J., Central Life Insurance Co., Chicago, Ill. (I, II, III, IV.)

LESHANE, ALBERT H., Employers Liability Assurance Corporation, 110 Milk Street, Boston, Mass. (II.)

LEVINE, JACOB, Office of S. H. & Lee J. Wolfe, 116 John Street, New York. (II.)

LEWIS, BARNETT, 372 St. John Avenue, Winnipeg, Canada. (I, II, III, IV.)

LEWIS, JOHN H., Lumber Mutual Casualty Insurance Company of New York, 41 East 42nd Street, New York. (II.)

LEWIS, RAYMOND W., 1921 Park Road, Washington, D. C. (I, II, IV.)

LINCOLN, CHARLES G., 51 North Quaker Lane, West Hartford, Conn. (I, II, III.)

LITTLE, ROBERT H., Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, III, IV.)

LIVINGSTON, GILBERT R., National Bureau of Casualty and Surety Underwriters, 60 John Street, New York. (I, II.)

LOADMAN, ARTHUR E., 665 Elgin Avenue, Winnipeg, Manitoba, Canada. (I, II, III› IV.)

LOCKE, HENRY D., Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass. (II.)

LOUIS, P. H., United States Life Insurance Company, 101 Fifth Avenue, New York. (I, II, IV.)

LUFKIN, ROBERT W., Employers Liability Assurance Corporation, 110 Milk Street, Boston, Mass. (I, II.)

MARKS, MAXWELL, 8733 23rd Avenue, Brooklyn, N. Y. (I, II.)

MELLOR, VINCENT, General Reinsurance Corporation, 90 John Street, New York, (II.)

MIDDLESWART, FRANCIS F., Equitable Life Assurance Society, 393 Seventh Avenue, New York. (III.)

MILES, JAMES R., Underwriter, Manufacturers' Casualty Insurance Co., 919 Walnut Street, Philadelphia, Pa. (I, II.)

MITCHELL, THOMAS K., Underwriters, Aetna Casualty and Surety Company, 1550 Northwestern Bank Bldg., Minneapolis, Minn. (II.)

MOORE, HAROLD P. H., Great West Life Assurance Co., Winnipeg, Manitoba, Canada. (I, II, III, IV.)

MORRIS, WILLIAM S., Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, IV.)

MULLANS, G. ROBERT, The Travelers Insurance Company, Hartford, Conn. (I, II, III, IV.)

MUNTERICH, GEORGE C., National Council on Compensation Insurance, 45 East 17th Street, New York. (I, II.)

MUTH, A. F., Actuarial Department, London Life Insurance Co., London, Canada. (I, II, III, IV.)

NORDOS, WILBUR R., Actuarial Division, Metropolitan Life Insurance Company, One Madison Avenue, New York. (III.)

O'KEEFE, RICHARD E., Metropolitan Life Insurance Company, One Madison Avenue, New York. (I, II, III, IV.)

ORLOFF, CONRAD, Marsh & McLellan, Inc., 164 W. Jackson Boulevard, Chicago. Ill. (I, II, III, IV.)

PARRY, ARTHUR F., Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, II, III, IV.)

STUDENTS

PENNEY, WALTER F., Metropolitan Life Insurance Company, One Madison Avenue, New York. (I, IV.)

PRASOW, ROSE, Actuarial Department, Confederation Life Association, Toronto, Ontario, Canada. (I, II, III, IV.)

RINTOUL, JOHN W., Canada Life Assurance Co., Toronto, Ontario, Canada. (I, II, III, IV.)

ROBERTSON, ARTHUR G., Government Insurance Department, Ottawa, Ontario, Canada. (I, II, III, IV.)

ROOD, HENRY F., Lincoln National Life Insurance Company, Fort Wayne, Ind. (I, II, III, IV.)

ROSS, SAMUEL M., National Bureau of Casualty and Surety Underwriters, 60 John Street, New York. (I.)

SCHWARTZ, MAX J., New York State Insurance Department, State Office Building, Albany, N. Y. (I.)

SCHWARTZ, RICHARD T., Actuarial Department, New York Life Insurance Co., 51 Madison Avenue, New York. (I, II, III, IV.)

SIEGELTUCH, NORMAN, 2201 Caton Avenue, Brooklyn, N. Y. (I, II, III, IV.)

SILVER, HAROLD J., Office of S. H. and Lee J. Wolfe, 116 John Street, New York. (II, IV.)

SMITH, SEYMOUR E., The Travelers Insurance Company, Hartford, Conn. (I, II, IV.)

SUTHERLAND, HENRY M., Sun Life Assurance Company, Montreal, Canada. (I, II, III, IV.)

THOMPSON, EMERSON W., The Travelers Insurance Company, Hartford, Conn. (I, II, III, IV.)

TILLINGHAST, JOHN P., Union Central Life Insurance Company, Cincinnati, Ohio. (I, III, IV.)

TOWNE, ROBERT J., Union Central Life Insurance Company, Cincinnati, Ohio. (I, II, III, IV.)

TRACY, ELEANOR, Cornell University, Ithaca, New York. (II.)

TUCK, IRA N., 342 Irving Avenue, South Orange, New Jersey. (I, II.)

UHTHOFF, D. R., National Council on Compensation Insurance, 45 East 17th Street, New York. (II.)

URBANEK, JOSEPH P., 35 St. Nicholas Terrace, New York. (I.)

WALL, DEAN, Actuarial Department, General American Life Insurance Co., St. Louis, Mo. (I, II, III, IV.)

WALRATH, ARTHUR J., 7 Kellogg Street, Windsor, Conn. (II.)

WANNER, FRANKLIN D., Kemper Insurance Organization, 4750 Sheridan Road, Chicago, Ill. (I.)

WARD, ROBERT G., Columbian National Life Insurance Co., Boston, Mass (I, II, III, IV.)

WARTELL, BEN, 2402 65th Street, Brooklyn, New York. (I, II.)

WEINFLASH, BERNARD, 613 Wilson Avenue, Brooklyn, N. Y. (II.)

WHITE, AUBREY, 97 Chaplin Crescent, Toronto, Ontario, Canada. (I, II, III, IV.)

WILSON, JOHN F., Manufacturers Life Insurance Co., Toronto, Ontario, Canada. (I, II, III, IV.)

WITTLAKE, J. CLARKE, Actuarial Department, Business Men's Assurance Co., Kansas City, Mo. (I, III, IV.)

WOLFE, LEROY J., Second Lieutenant, 25th Field Artillery, Madison Barracks, New York. (I, III, IV.)

STUDENTS

WOLFMAN, MAURICE, Office of Harry S. Tressel, 10 South LaSalle Street, Chicago, Ill. (I, II, III, IV.)

WOOD, ERIC H., Equitable Life Assurance Society, 393 Seventh Avenue, New York. (I, II, III.)

WOODDY, JOHN G., 7313 N. Honore Street, Chicago, Ill. (I, II.)

WRIGHT, WILLIAM W., 1831 Jefferson Place, N. W., Washington, D. C. (II.)

YAGMAN, BERNARD, 130 Wadsworth Avenue, New York. (III.)

YATES, J. ARNOLD, The Travelers Insurance Company, Hartford, Conn. (I, II, III, IV.)

YOUNG, WALTER, Prudential Insurance Company, Newark, New Jersey. (I, II, III, IV.)

ZINMAN, ESTHER, State Insurance Fund, 625 Madison Avenue, New York. (II.)

ZOCH, RICHMOND T., United States Weather Bureau, Washington, D. C. (I, II, III, IV.)

CONSTITUTION

(As Amended November 23, 1928)

Article I.—*Name.*

This organization shall be called the Casualty Actuarial Society.

Article II.—*Object.*

The object of the Society shall be the promotion of actuarial and statistical science as applied to the problems of casualty and social insurance by means of personal intercourse, the presentation and discussion of appropriate papers, the collection of a library and such other means as may be found desirable.

The Society shall take no partisan attitude, by resolution or otherwise, upon any question relating to casualty or social insurance.

Article III.—*Membership.*

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

The Fellows of the Society shall be the present members and those who may be duly admitted to Fellowship as hereinafter provided. Any Associate of the Society may apply to the Council for admission to Fellowship. If the application shall be approved by the Council with not more than three negative votes the Associate shall become a Fellow on passing such final examination as the Council may prescribe. Otherwise no one shall be admitted as a Fellow unless recommended by a duly called meeting of the Council with not more than three negative votes followed by a three-fourths ballot of the Fellows present and voting at a meeting of the Society.

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

Article IV.—*Officers and Council.*

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

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

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

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

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

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

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

ARTICLE VII.—*Meetings.*

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

ARTICLE VIII.—*Quorum.*

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

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

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

ARTICLE X.—*Amendments.*

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

BY-LAWS

(As Amended November 13, 1936)

Article I.—*Order of Business.*

At a meeting of the Society the following order of business shall be observed unless the Society votes otherwise for the time being:

1. Calling of the roll.
2. Address or remarks by the President.
3. Minutes of the last meeting.
4. Report by the Council on business transacted by it since the last meeting of the Society.
5. New membership.
6. Reports of officers and committees.
7. Election of officers and Council (at annual meetings only).
8. Unfinished business.
9. New business.
10. Reading of papers.
11. Discussion of papers.

Article II.—*Council Meetings.*

Meetings of the Council shall be called whenever the President or three members of the Council so request, but not without sending notice to each member of the Council seven or more days before the time appointed. Such notice shall state the objects intended to be brought before the meeting, and should other matter be passed upon, any member of the Council shall have the right to re-open the question at the next meeting.

Article III.—*Duties of Officers.*

The President, or, in his absence, one of the Vice-Presidents, shall preside at meetings of the Society and of the Council. At the Society meetings the presiding officer shall vote only in case of a tie, but at the Council meetings he may vote in all cases.

The Secretary-Treasurer shall keep a full and accurate record of the proceedings at the meetings of the Society and of the Council, send out calls for the said meetings, and, with the approval of the President and Council, carry on the correspondence of the Society. Subject to the direction of the Council, he shall have immediate charge of the office and archives of the Society.

The Secretary-Treasurer shall also send out calls for annual dues and acknowledge receipt of same; pay all bills approved by the President for expenditures authorized by the Council of the Society; keep a detailed account of all receipts and expenditures, and present an abstract of the same at the annual meetings, after it has been audited by a committee of the Council.

The Editor shall, under the general supervision of the Council, have charge of all matters connected with editing and printing the Society's publications. The *Proceedings* shall contain only the proceedings of the meetings, original papers or reviews written by members, discussions on said papers and other matter expressly authorized by the Council.

The Librarian shall, under the general supervision of the Council, have charge of the books, pamphlets, manuscripts and other literary or scientific material collected by the Society.

ARTICLE IV.—*Dues.*

The dues shall be ten dollars for Fellows payable upon entrance and at each annual meeting thereafter, except in the case of Fellows not residing in the United States, Canada, or Mexico, who shall pay five dollars at the time stated. The dues shall be five dollars for Associates payable upon entrance and each annual meeting thereafter until five such payments in all shall have been made; beginning with the sixth annual meeting after the admission of an Associate as such the dues of any Associate heretofore or hereafter admitted shall be the same as those of a Fellow. The payment of dues will be waived in the case of Fellows or Associates who have attained the age of seventy years or who, having been members for a period of at least twenty years, shall have attained the age of sixty-five years.

It shall be the duty of the Secretary-Treasurer to notify by mail any Fellow or Associate whose dues may be six months in arrears, and to accompany such notice by a copy of this article. If such Fellow or Associate shall fail to pay his dues within three months from the date of mailing such notice, his name shall be stricken from the rolls, and he shall thereupon cease to be a Fellow or Associate of the Society. He may, however, be reinstated by vote of the Council, and upon payment of arrears of dues.

ARTICLE V.—*Designation by Initials.*

Fellows of the Society are authorized to append to their names the initials F. C. A. S.; and Associates are authorized to append to their names the initials A. C. A. S.

ARTICLE VI.—*Amendments.*

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

EXAMINATION REQUIREMENTS

SYLLABUS OF EXAMINATIONS

Effective 1934 and thereafter

SUBJECTS

ASSOCIATESHIP:

PART I

Section 1. Advanced algebra
Section 2. Compound interest and annuities certain

PART II

Section 3. Descriptive and analytical statistics
Section 4. Elements of accounting, including double-entry bookkeeping

PART III

Section 5. Finite differences
Section 6. Differential and integral calculus

PART IV

Section 7. Probabilities
Section 8. Elements of the theory of life contingencies; life annuities; life assurances

FELLOWSHIP:

PART I

Section 9. Policy forms and underwriting practice in casualty insurance
Section 10. Investments of insurance companies

PART II

Section 11. Insurance law and legislation
Section 12. Economics of insurance

PART III

Section 13. Calculation of premiums and reserves for casualty (including social) insurance
Section 14. Advanced practical problems in casualty (including social) insurance statistics

PART IV

Section 15. Advanced problems and practical methods of casualty insurance accounting
Section 16. Advanced problems in underwriting, administrative and service elements of casualty (including social) insurance

To assist students in preparation for the examinations, Recommendations for Study have been prepared. This lists the texts, readings and technical material which must be mastered by the candidates. Textbooks are loaned to registered students by the Society. By "registered students" is meant candidates who have signified their willingness to take the examinations by the payment of their examination fees.

RULES REGARDING EXAMINATIONS FOR ADMISSION TO THE SOCIETY

(As Amended November 14, 1935)

The Council adopted the following rules providing for the examination system of the Society:

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

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

3. The examination fee is $2.00 for each part, with a minimum of $5.00 for each year in which the candidate presents himself; thus for one or two parts, $5.00, for three parts, $6.00, etc. Examination fees are payable to the order of the Society and must be received by the Secretary-Treasurer before the fifteenth day of February preceding the dates of examination.

4. The examination for Associateship consists of four parts. No candidate will be permitted to present himself for any part of the examination unless he has previously passed, or shall concurrently present himself for and submit papers for, all preceding parts. If a candidate takes two or more parts in the same year and passes in one and fails in the other, he will be given credit for the part passed. Upon the candidate having passed all four parts he will be enrolled as an Associate, provided he presents evidence of at least one year of experience in actuarial, accounting or statistical work in casualty insurance offices or in the teaching of casualty insurance science at a recognized college or university, or other evidence of his knowledge of actuarial, accounting or statistical work as is satisfactory to the Council.*

* Candidates who have had no insurance experience, or whose experience is limited exclusively to life insurance companies, or who have not had one year of casualty insurance experience, will not be enrolled as Associates after passing all four Parts, until they have had one year of casualty insurance experience; however, candidates not having one year of casualty insurance experience may, in accordance with a ruling of the Committee on Admissions, be enrolled as Associates upon passing the examination for Fellowship Parts I and II.

EXAMINATION REQUIREMENTS

5. The examination for Fellowship is divided into four parts. No candidate will be permitted to present himself for any part of the examination unless he has previously passed, or is then also presenting himself for all preceding parts. If a candidate takes two or more parts in the same year and passes in one and fails in the others, he will be given credit for the part passed.

6. As an alternative to the passing of Parts III and IV of the Fellowship Examination, a candidate may elect to present an original thesis on an approved subject relating to casualty or social insurance. Such thesis must show evidence of ability for original research and the solution of advanced problems in casualty insurance comparable with that required to pass Parts III and IV of the Fellowship Examination, and shall not consist solely of data of an historical nature. Candidates electing this alternative should communicate with the Secretary-Treasurer and obtain through him approval by the Examination Committee of the subject of the thesis. In communicating with the Secretary-Treasurer, the candidate should state, in addition to the subject of the thesis, the main divisions of the subject and general method of treatment, the approximate number of words and the approximate proportion to be devoted to data of an historical nature. All theses must be in the hands of the Secretary-Treasurer before the third Wednesday in May of the year in which they are to be considered. Where Parts I and II of the Fellowship examination are not taken during the same year, no examination fee will be required in connection with the presentation of a thesis. All theses submitted are, if accepted, to be the property of the Society and may, with the approval of the Council, be printed in the *Proceedings*.

EXAMINATION REQUIREMENTS

Waiver of Examinations for Associate

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

1. The candidate shall be at least thirty-five years of age.

2. The candidate shall have had at least ten years' experience in casualty actuarial or statistical work or in a phase of casualty insurance which requires a working knowledge of actuarial or statistical procedure or in the teaching of casualty insurance principles in colleges or universities. Experience limited exclusively to the field of accident and health insurance shall not be admissible.

3. For the two years preceding date of application, the candidate shall have been in responsible charge of the actuarial or statistical department of a casualty insurance organization or of an important division of such department or shall have occupied an executive position in connection with the phase of casualty work in which he is engaged, or, if engaged in teaching, shall have attained the status of a professor.

4. The candidate shall have submitted a thesis approved by the Examination Committee. Such thesis must show evidence of original research and knowledge of casualty insurance and shall not consist solely of data of an historical nature. Candidates electing this alternative should communicate with the Secretary-Treasurer and obtain through him approval by the Examination Committee of the subject of the thesis. In communicating with the Secretary-Treasurer, the candidate should state, in addition to the subject of the thesis, the main divisions of the subject and general method of treatment, the approximate number of words and the approximate proportion to be devoted to data of an historical nature.

Library

The Society's library has practically all of the books listed in the Recommendations for Study, as well as others on casualty actuarial matters. Registered students may have access to the library by receiving from the Society's Secretary the necessary credentials. Books may be withdrawn from the library for a period of two weeks upon payment of a small service fee and necessary postage.

The library is in the immediate charge of Miss Mabel B. Swerig, Librarian of the Insurance Society of New York, 100 William Street, New York City.

1938 EXAMINATIONS OF THE SOCIETY

MAY 18 AND 19, 1938

EXAMINATION COMMITTEE

JAMES M. CAHILL - - - GENERAL CHAIRMAN

IN CHARGE OF ASSOCIATESHIP EXAMINATIONS	IN CHARGE OF FELLOWSHIP EXAMINATIONS
ROBERT V. SINNOTT, CHAIRMAN	NELS M. VALERIUS, CHAIRMAN
HARRY V. WILLIAMS, JR.	MARK KORMES
ARTHUR E. CLEARY	RUSSELL P. GODDARD
DANIEL J. LYONS	
MATTHEW H. MCCONNELL, JR.	

EXAMINATION FOR ADMISSION AS ASSOCIATE

PART I

1. (a) There are four numbers, the first three of which are in arithmetical progression and the last three in geometrical progression. The sum of the first and fourth is 16 and the sum of the second and third is 8. Find the numbers.

   (b) Solve $3x^3 - 91x^2 - 1183x + 6591 = 0$, having given that the roots form a geometrical progression.

2. Three automobiles start from A at the same rate of speed for a destination B. The first car proceeds without change of speed to B. The second car, after traveling an hour, stops for an hour, and then proceeds at one-half of its original speed to B and arrives five hours after the first car. The third car travels on to a point sixty miles beyond the point at which the second car stopped, waits for an hour and a half and then proceeds at two-thirds of its original speed to B, arriving two and one-half hours before the second car. What is the distance from A to B?

3. (a) Solve the equation:

$$10\,(x^4 + 1) - 63x\,(x^2 - 1) + 52x^2 = 0.$$

   (b) The sum of the coefficients of the expansion of $(x + a)^n$ is 256 and the r^{th} and $(r + 1)^{\text{st}}$ terms are the greatest and are equal in value. Find a, x, r, and n, given the following:

   (i) $a : x = r : n$

   (ii) $\log x = (n - 4) \log a$.

4. (a) How many numbers, each of five figures, can be formed with the characters 2, 3, 4, 2, 5, 2, 3, 6, 7?

   (b) In how many ways may the players of an eight-handed card game be selected and seated at a round table if ladies and gentlemen occupy alternate positions and seven ladies and nine gentlemen are willing to play?

5. Derive an approximate formula for the average due time of the debts S_1, S_2, S_3, ... S_p which are due at the ends of n_1, n_2, n_3, ... n_p years respectively. Express the average due time in terms of S_1, S_2, ... S_p and n_1, n_2, ... n_p only.

6. (a) A man pays $500 a year for three years and then $2,500 a year for three years on a debt of $7,000 bearing interest at 6% per annum. How much of the debt is unpaid at the end of six years?

   $(1.06)^6 = 1.4185$ $\qquad S_{\overline{3}|} = 3.1836$ $\qquad S_{\overline{6}|} = 6.9753.$

   (b) Show that $\dfrac{1}{S_{\overline{n+1}|}-1} = \dfrac{1}{1+a_{\overline{n-1}|}} - d.$

7. What is the maximum percent of the cost of building a concrete wall which could be spent economically for treatment which would extend its life from fifteen to twenty years, assuming the cost of rebuilding the wall remains the same and that money is worth 4%?

   Given $a_{\overline{15}|} = 11.1184$ and $a_{\overline{20}|} = 13.5903.$

8. What price should be paid for $10,000 of serial bonds to be issued June 1, 1938 with 4% coupons payable annually and maturing in ten equal annual installments, beginning June 1, 1939, if the purchaser is to net an effective rate of 5%?

   $a_{\overline{10}|}$ at 5% $= 7.7217.$

PART II

1. (a) State methods of finding the trend and discuss them briefly.

   (b) Prove that the square of the root mean square deviation from an arbitrary origin in a frequency distribution exceeds the square of the standard deviation by the square of the difference between the mean and the arbitrary origin.

2. Compute the standard deviation and coefficient of variation for the following distribution. Apply Charlier check in the solution.

(1) *Interval*	(2) *Frequency*
.03 — .039	25
.04 — .049	30
.05 — .059	40
.06 — .069	45
.07 — .079	35
.08 — .089	25

3. (a) What are the time reversal and factor reversal tests as used in the construction of index numbers?

   (b) Give definitions and formulae for the coefficient of correlation and the correlation ratio. Explain why the correlation ratio may never be less than the coefficient of correlation.

4. A restaurant keeper finds that if he has G guests a day, his total daily expenditures are E dollars and his total daily receipts are R dollars. The following data are obtained from his books:

G	210	270	320	360
E	16.7	19.4	21.6	23.4
R	15.8	21.2	26.4	29.8

By the method of least squares, determine the relations $R = MG$ and $E = aG + b$. How can we interpret M, a, and b? Below what value of G does the business cease to be profitable? Can we make a better approximation by taking $R = MG + n$?

5. (a) What is meant by fixed assets, fixed liabilities, current assets, current liabilities?

   (b) Name five basic accounting books and explain their use.

6. It is evident that it is desirable to have a record of the amount of purchase discounts extended to a business and also the advantage of this discount taken by the business. Briefly outline a system to care for this problem. Illustrate system by a purchase of $100 on which is allowed a purchase discount of 5% if paid within 30 days, after which a discount of 2% is extended if bill is paid within 60 days. The proprietor pays the bill on the 59th day with cash. Show entries necessary to record this transaction and also make any adjusting entry necessary to show cost of purchase appearing in purchase account.

7. The following are the balances of the general ledger of the X Company as of December 31, 1937:

Cash	$ 5,300
Accounts Receivable	13,500
Merchandise Inventory (12-31-36)	8,000
Furniture	1,500
Notes Payable	1,000
Reserves for Depreciation	250
Accounts Payable	6,600
Capital Stock	12,000
Surplus	5,900
Sales	25,000
Purchases	14,000
Selling Expenses	2,000
Salaries	3,500
Rent	1,500
Taxes	200
Insurance	300
Interest Paid	50
Bad Debts	900

Merchandise Inventory on December 31, 1937 was $3,000, Accrued Salaries amounted to $300, Unexpired Insurance was $150, and a Reserve of $50 for Depreciation was set up.

Make the adjusting journal entries and prepare a Trial Balance.

8. Using the accounting data given in Question 7, prepare a Profit and Loss Statement and a Balance Sheet for the X Company as of December 31, 1937.

PART III

1. Given

x	1	2	4	6
U_x	5	17	89	265

Find U_3 and U_5 by method of finite differences.

2. (a) Find the sum to n terms of the series whose x^{th} term is $x(x-1)(x-2)$.

   (b) Find the sum of the series $a + 2a^2 + 3a^3 + 4a^4 + \ldots\ldots$ to n terms by finite differences.

3. (a) Derive Gauss's central difference formula.

   (b) What are the practical advantages of a central difference formula?

4. Given the function $U_x = 2 - 4x + 5x^2 - x^3$. For what intervals of x should U_x be tabulated so that in any interval an interpolated value of U_x can be obtained by second difference interpolation with an error of less than .01?

5. (a) Find $\frac{dy}{dx}$ where $y = x^x + x^{\frac{1}{x}}$.

   (b) Derive a reduction formula for $\int \frac{dx}{(a^2 + x^2)^n}$

6. (a) State the Law of the Mean.

   (b) Perform the following integration:

$$\int \frac{dx}{(a^2 - x^2)^{3/2}}$$

7. An automobile is traveling at the rate of 30 miles an hour around a curve in the form of a parabola $y^2 = 100x$, the axis of the parabola being east and west and the foot being taken as the unit of length. The sun is just rising in the east. Find how fast the shadow of the automobile is moving along a billboard, which is placed north and south at the turn in the road (passing through the vertex of parabola), when the distance

of the shadow from the axis of the parabola is 30 feet along the billboard.

8. A tank is 10 feet square at the top and is filled to the brim with water. The bottom of the tank is of such a shape that the depth at any point P of the surface is c times the square of the distance from P to a corner A. Find the volume of the tank.

PART IV

1. (a) Four squares are marked 1, 2, 3, and 4 and four checkers marked 1, 2, 3, and 4 are placed on the four squares at random. What is the probability that at least one checker rests on a square marked with its number?

   (b) The sum of two whole numbers is 100; find the chance that their product is less than 1000.

2. (a) A certain gambler wins 3 out of every 5 games that he plays and in each game stakes ½ of his funds against an equal amount. What is his expectation in 100 games if he starts with $100?

   (b) A card is drawn at random from a pack and replaced, then a second drawing is made and so on. How many drawings must be made in order to have a chance of ½ that the ace of hearts will appear at least once?
   Given:
   $\log 2 = .3010 \qquad \log 51 = 1.7076 \qquad \log 52 = 1.7160.$

3. An urn contains N balls, black and white, in unknown proportion. A ball is drawn out n times and replaced, the balls being mixed after each drawing, with the result that just m white balls are seen. Assuming that all mixtures of white and black balls are equally likely a priori, determine the probability that the urn contains exactly R white balls.

4. A has a box containing 4 dice, with the faces numbered 1 to 6, and B has a dice box containing 3 dice similarly numbered. They throw in succession, A commencing, and the one who first throws 10 receives $29. Find the values of their respective expectations.

5. Find expressions for the following probabilities:—
   That out of 25 persons aged x,
   (a) Exactly 5 will die in a year.
   (b) Not more than 5 will die in a year.
   (c) 5 designated individuals and no more will die in a year.
   (d) 5 designated individuals at least will die in a year.

6. (a) Prove that D_x is always greater than M_x.
   (b) Develop the formula for the annual premium payable during life for an assurance on the life of (x), the sum assured not to be paid in any event for twenty years from the date of the policy.

7. (a) Given a table of values of a_x. How can the mortality table underlying this table be reproduced?
   (b) A whole life policy was effected n years ago at age x, and the sum assured is now to be reduced by half, the value of the rest of the policy being applied in reduction of the annual premium. Find the future annual premium. Express answer in terms of P_x and P_{x+n}.

8. Given any two of the three functions a_x, A_x and P_x, the rate of interest i at which they were calculated can be found. Show the three formulae for the calculation of i which can be developed from the various combinations of two of the three functions and prove that they are equivalent.

EXAMINATION FOR ADMISSION AS FELLOW

PART I

1. (a) Indicate which lines of casualty insurance have the following as the basis of premium:
   (1) Payroll of employees
   (2) Area and frontage
   (3) Number of employees
   (4) Total sales
   (5) Number of articles likely to cause injury or damage
   (6) Number of articles likely to suffer loss or damage
   (7) Value of articles likely to suffer loss or damage.

(b) Compare the treatment of the payroll of the Standard Exception classifications for basis of premium purposes under the Compensation policy and under the Manufacturers' and Contractors' Public Liability policy of the same risk. Explain the difference.

2. (a) What operations or transactions and what parties in interest call for the issuance of the following types of bonds:

(1) Depository bonds
(2) Bid bonds
(3) Blanket position bonds

(b) What protection is or may be granted under a Steam Boiler policy and what is the period of coverage contemplated by the rates printed in the Manual?

3. (a) What information is necessary for the determination of the premium on a Plate Glass policy? Is it permissible to issue a policy for more than one year and, if so, how is the premium determined?

(b) What is the coverage provided by Mercantile Open Stock insurance? A Mercantile Open Stock policy in the amount of $4,000 contains a "co-insurance" limit of $5,000. If the "co-insurance" percentage for the territory in which the risk is located is 80%, explain the meaning of "co-insurance" and "co-insurance limit" and indicate the liability of the company for a loss valued at $3,000 if the value of the stock was $6,000.

4. (a) Explain several limitations imposed upon the amount of indemnity under Accident and Health policies.

(b) Explain the calculation of the Maximum Retrospective Premium for a Compensation policy written under the National Council's Retrospective Rating Plan in case of cancellation by the insured and in case of cancellation by the insurance company.

5. (a) Describe briefly the Automobile Fleet Plan. Under what circumstances and to what types of vehicles does it not apply?

(b) How is "accident" defined for purposes of application of Product Public Liability policy limits? What are standard limits for this policy?

6. For purposes of preparing the annual statement, what is the best method of valuing:

   (1) Real Estate
   (2) Bonds
   (3) Stocks

7. Comment upon the present condition of the security markets from the point of view of the manager of the investment department of a casualty company.

8. Discuss the place of investment income in the economy of a representative stock casualty carrier, indicating the sources of funds available for investment and the degree to which such funds should be invested.

PART II

1. (a) What is the rule of legal integration (parol evidence rule)?

   (b) What is the general effect and purpose of the Statute of Frauds?

2. (a) What is subrogation and when can the subrogation right be invoked?

   (b) Could either party to a contract of casualty insurance assign the contract to a third party without consent of the second, assuming there was no provision in the policy on this point? Give reasons for your answer.

3. (a) Distinguish between an affirmative and a continuing warranty.

   (b) A casualty insurance company imprints on its policies a slogan "Equal to the Best". An assured, having sustained a loss, with attendant settlement costs, partially covered by the policy, finds that the policy of another company at the same manual premium and known as the same "line" of coverage would have been advantageous to him, as, in the particular circumstances, more of the settlement costs would have been taken care of. Has the assured a case against the company?

4. (a) A man insured under an accident policy went to a licensed physician's office to secure an examination. The examination involved the use of instruments and in order to make it as little painful as possible, the physician administered a local anaesthetic. Immediately the injured went into convulsions and died in a few minutes. The anaesthetic was properly administered and was a usual drug used for the purpose of inducing local anaesthesia without injury to the patient. The death resulted, therefore, from an unknown, unforeseen and unexpected susceptibility to this drug. Can there be a recovery under the accident policy providing benefits for death resulting from injury effected by accidental means?

   (b) What is the status of executive officers of corporations under the New York Workmen's Compensation Law?

5. (a) Discuss administrative devices by which Insurance Commissioners' decisions may be and are effectuated in the United States.

   (b) Describe several bases of valuation of securities other than December 31st market values adopted by the National Convention of Insurance Commissioners at various times in the past two decades. What obligation of his office must a Commissioner consider in determining the approved values?

6. (a) State necessary and sufficient conditions in order that insurance may be used to advantage as the means of dealing with risk. Illustrate from the operations of a commercial enterprise risks that are and are not suitably disposed of in this way.

(b) If it is true that the more uncertain risks may be carried best by large scale methods, are large insurance companies able to quote lower rates than small ones? Discuss.

7. Compulsory health insurance for the regularly employed industrial population of the United States is proposed. Assuming that the enactment of such a proposal has been assured, outline briefly the provisions you would consider the model bill should have as to benefits and the mode of financing the system, and defend these.

8. Compare and discuss the basic ideas and aims of the Wisconsin and Ohio unemployment compensation plans.

PART III

1. (a) The rate-making formula for Workmen's Compensation may be expressed, neglecting adjustments, as:

$$\frac{\text{Losses}}{\text{Payroll} \times \text{Permissible Loss Ratio}} = \text{Rate}$$

Make a list of the various factors or adjustments which are applied to the above elements under the rate-making method of the National Council on Compensation Insurance, and state whether they are applied to the experience as a whole, or to separate divisions of the experience, such as Industry Group, Policy Year, or Type of Benefit.

(b) Does the Pennsylvania system of Compensation rate-making involve a differential by size of risk? Explain.

2. In a certain line of casualty insurance, rate changes are determined from the loss ratio on a present rate basis for the entire business in the latest three policy years, the permissible loss ratio being 50%. The actual premiums for policy years 1933, 1934 and 1935 were \$500,000, \$600,000 and \$800,000 respectively, and the actual loss ratios were 60%, 50% and 40% respectively.

Bearing in mind that the following rate level changes occurred (applicable to new and renewal business only): 20% increase on July 1, 1934, 10% increase on July 1, 1935, and 15%

decrease on January 1, 1937, find the amount of necessary change in the present rate level.

3. How would you proceed to calculate:

   (a) the payroll modification factors

   (b) the "K" values

   for the Experience Rating Plan of the National Council on Compensation Insurance or of the Compensation Insurance Rating Board of New York?

4. What is the formal mathematical criterion for credibility based on accident frequency as used in Owners', Landlords' & Tenants' Public Liability rate making? Criticize it briefly.

5. You are asked to estimate rates for an Automobile Liability policy combining bodily injury and property damage coverage to a limit of $1,000 per accident. You have the rates for property damage alone with a $1,000 limit, and the rates for 5/10 bodily injury coverage and the following size of loss per claim experience under 5/10 coverage (size of loss per accident experience is not available):

Size of Loss	Number of Claims	Total Amount of Losses
$ 0-1000	95,100	$14,800,000
1001-5000	8,900	21,700,000
Total	104,000	$36,500,000

   Give the reasoning by which you arrive at your answer, which will of necessity be expressed in terms of the 5/10 bodily injury and the $1,000 property damage separate rates.

6. (a) What is the general rule in Accident insurance for figuring the rates on unlevel policies or policies providing the principal sum only or weekly indemnity only?

   (b) Write briefly on unemployment statistics in the United States; include comment on the prospects for the near future as to such statistics.

7. You are called as a consulting actuary to examine the pension fund of a certain organization, such fund being based on joint contributions of employer and employee. Outline the pro-

cedure which would be necessary to determine the solvency of the fund and state what factors would influence your recommendations in case you find the fund to be impaired.

8. Outline briefly a practical system of punched-card accounting for three year one-payment policies, including provision for usual statistical call requirements, premium reserves, etc. How would you record the short-rate cancellation of such policies in the second year?

PART IV

1. (a) Are the terms "Non-Ledger Assets" and "Assets Not Admitted" of annual statement accounting of the same meaning? If, to your mind, some or all of the items listed thereunder would be treated differently in general accounting, explain why they are treated as they are.

   (b) Describe the content and purpose of three important schedules, other than Schedule P, of the Annual Statement.

2. (a) What information is required in the various parts of the New York Casualty Experience Exhibit and what is the purpose thereof?

   (b) Discuss the advisability of setting up a formula reserve method, similar to Schedule P for Liability, for computing the loss reserves for Fidelity and Surety.

3. (a) Give reasons for and against making a complete separation of Automobile and Other Liability in Schedule P.

   (b) Outline briefly a method for setting up reserves for claims incurred but not reported at the year's end.

4. Outline a reasonably accurate and practicable method of allocating to lines of insurance that portion of the general casualty administration expense incurred in the Casualty Actuarial and Statistical Division of a large multiple line carrier.

5. Discuss the advisability of constructing a disabled lives table for Compensation insurance purposes from Compensation experience on "permanent total" cases. Draft a form to be used by the companies in reporting the necessary data to a central organization, and state why each item of information is required.

6. Discuss the following proposals to increase and stabilize the volume of private passenger automobile liability insurance:
   (1) Three-year policies, with the total amount of commission 50% greater than that allowed for a one-year policy.
   (2) Reduction in rate for renewal policies, this reduction to be made by savings in commission, field supervision, and home office expense.
   (3) Removal of the omnibus clause.
   (4) Lowering of the standard limits to $1,000/$5,000 for Bodily Injury and $1,000 for Property Damage.

7. The insurance of occupational disease on a Compensation basis presents unusual difficulties during the first years that such disease is made a compensable condition by the state. Indicate the nature of the difficulties and methods that have been or may be used to meet them, including partial insurance, legislative provisions, etc. What do you regard as the best arrangement?

8. In what way does the Illinois Insurance Code which became effective on July 1, 1937 restrict the underwriting powers of insurance carriers beyond previous restrictions? In relation to the public interest, do you consider rigid demarcation of the field of operations and assignment of carriers into classes to be desirable, or should the underwriting powers of all carriers be broadened? Discuss.

CASUALTY ACTUARIAL SOCIETY

PAPERS IN THE PROCEEDINGS

VOLUME I NUMBER 1 PP. 76

Scientific Methods of Computing Compensation Rates. I. M. Rubinow.

How Extensive a Payroll Exposure is Necessary to Give a Dependable Pure Premium. Albert H. Mowbray.

Valuation of the Death Benefits Provided by the New York Compensation Law. Winfield W. Greene.

VOLUME I NUMBER 2 PP. 130

Workmen's Compensation Claim Reserves. Miles M. Dawson.

Workmen's Compensation Reserves. Joseph H. Woodward.

A Method Proposed for the Calculation of Liability and Workmen's Compensation Claim Reserves. Benedict D. Flynn.

The Essential Factors in the Computation of the Cost of Workmen's Compensation. W. N. Magoun.

VOLUME I NUMBER 3 PP. 109

Schedule Rating in Compensation Insurance. I. M. Rubinow.

Development, Application and Effect of Schedule Rating in Liability and Compensation Insurance, Carl M. Hansen.

The Effect of Schedule and Experience Rating on Workmen's Compensation Risks in New York. Leon S. Senior.

Schedule Rating Considered from an Actuarial Point of View. Albert H. Mowbray.

Notes on the Theory of Schedule Rating. Albert W. Whitney.

Schedule Rating of Permanent Injuries. G. F. Michelbacher.

Division of Payroll. Eckford C. DeKay.

Liability Loss Reserves. I. M. Rubinow.

VOLUME II NUMBER 4 PP. 186

The Classification of Industries for Workmen's Compensation Insuranec. E. H. Downey.

Schedule Rating by Formula. Charles S. Forbes.

Inspection and Schedule Rating for Coal Mine Insurance. Herbert M. Wilson.

Accident and Health Insurance from an Actuarial Viewpoint. Walter I. King.

Rating Permanent Disabilities in Combination. G. F. Michelbacher.

Note on the Application of Recent Mathematical-Statistical Methods to Coal Mine Accidents, With Special Reference to Catastrophes in Coal Mines in the United States. Arne Fisher.

Burglary Insurance Statistics. Fred S. Garrison.

A System of Analyzing Workmen's Compensation Business by Means of Perforated Cards. Edmund E. Cammack.

Tables for Computing the Present Value of Death Benefits Arising Under the New York Workmen's Compensation Law. Richard Fondiller.

A New Graphic Method of Using the Normal Probability Curve. Buckner Speed.

The Determination of Pure Premiums for Minor Classifications on Which the Experience Data is Insufficient for Direct Estimate. Albert H. Mowbray.

Liability and Workmen's Compensation Loss Reserve. Robert K. Orr.

PAPERS IN THE PROCEEDINGS

VOLUME II NUMBER 5 PP. 148

Mortality from External Causes Among Industrial Policyholders of the Metropolitan Life Insurance Company, 1911-1914. Louis I. Dublin.

Analysis of the Cost of 10,307 Accidents Arising Under the New York Workmen's Compensation Law. Joseph H. Woodward.

Statistics Necessary for Computing Net Compensation Rates. Edward Olifiers.

The Compensation Cost of Occupational Disease. James D. Maddrill.

Work of the Statistical Committee of the Bureau of Personal Accident and Health Underwriters. Benedict D. Flynn.

American Methods of Compensating Permanent Partial Disabilities. I. M. Rubinow.

Cost Accounting in Casualty Insurance. Claude E. Scattergood.

VOLUME II NUMBER 6 PP. 196

The Relation Between Private and Social Insurance. I. M. Rubinow.

Should the Compensation Premium Reflect the Experience of the Individual Risk? Winfield W. Greene.

The Experience Rating of Workmen's Compensation Risks. Joseph H. Woodward.

Valuation of Pension Funds, With Special Reference to the Work of the New York City Pension Commission. George B. Buck.

A Preliminary Test of the Coal Mine Rating Schedule of the Associated Companies. E. H. Downey.

Outline of a Method for Determining Basic Pure Premiums. Arne Fisher.

Some Distinctive Features of Steam Boiler Underwriting, and Their Bearing Upon the Formulation of Premium Rates. Frank M. Fitch.

On the Relation of Accident Frequency to Business Activity. A. H. Mowbray and S. B. Black, D. S. Beyer co-operating.

Office Practice in the Valuation of Compensation Losses. Richard Fondiller.

A Study of Workmen's Compensation Schedule W and the Problems Incident Thereto. Edward S. Goodwin.

VOLUME III NUMBER 7 PP. 128

A Suggestion for a Modified Form of Amortization, With a Brief Memorandum of the Applicability of That Principle to the Bonds of Miscellaneous Companies. S. Herbert Wolfe.

Scheduled Experience Rating. Albert H. Mowbray.

Some Principles of Compensation Merit Rating. E. H. Downey.

Note on an Application of Bayes' Rule in the Classification of Hazards in Experience Rating. Arne Fisher.

Temporary and Permanent Disability Reserves. Miles M. Dawson.

PAPERS IN THE PROCEEDINGS

VOLUME III NUMBER 8 PP. 200

Provision for Expenses in Workmen's Compensation Premiums. Joseph H. Woodward.

Group Life Insurance and its Possible Development. Edward B. Morris.

Revision of Workmen's Compensation Rates. (January-March, 1917.) Harwood E. Ryan.

Rate Regulation. Albert W. Whitney.

The Theory of Law Differentials. G. F. Michelbacher.

Age, Occupation and Residence as Variants of the Rate of Sickness. Albert H. Mowbray.

Prospects for Social Statistics in the Next Census Year. Edwin W. Kopf.

Note on the Frequency Curves of Basic Pure Premiums. Arne Fisher.

VOLUME IV NUMBER 9 PP. 248

The War Insurance Act. James D. Craig.

The Theory and Practice of Law Differentials. I. M. Rubinow.

Premiums and Reserves of the Swiss Accident Insurance Institution. Joseph H. Woodward.

Notes on the Construction of Mortality Tables by Means of Compound Frequency Curves. Arne Fisher.

Manufacturers' and Contractors' Public Liability Insurance. G. F. Michelbacher.

Some Essentials of Sickness Statistics. Edwin W. Kopf.

VOLUME IV NUMBER 10 PP. 218

Economic Problems of the World War. James D. Craig.

A New Criterion of Adequacy of Exposure. Albert H. Mowbray.

The Theory of Experience Rating. Albert W. Whitney.

The Practice of Experience Rating. G. M. Michelbacher.

The Industrial Compensation Rating Schedule, 1918. E. H. Downey.

Legal Notes. Richard Fondiller.

VOLUME V NUMBER 11 PP. 196

The Relation Between the Actuary and the Statistician. James D. Craig.

Mortality from External Causes Among Industrial Policyholders of the Metropolitan Life Insurance Company, 1911-1916. Louis I. Dublin.

Essentials of Family Statistics. Edwin W. Kopf.

Comparison of Actual and Expected Losses as a Means of Loss Analysis. Albert H. Mowbray.

Legal Notes. Richard Fondiller.

PAPERS IN THE PROCEEDINGS

VOLUME V NUMBER 12 PP. 198

Insurance and Human Behavior. Joseph H. Woodward.

Casualty Insurance for Automobile Owners. G. F. Michelbacher.

The Revision of Pennsylvania Compensation Insurance Rates, 1918. E. H. Downey and G. C. Kelly.

Work of the Statistics Branch, United States Army. Ralph H. Blanchard.

Legal Notes. Richard Fondiller.

VOLUME VI NUMBER 13 PP. 168

The Effect of Inflation on the Business of Insurance. Joseph H. Woodward.

Upon Combining Compensation Experience from Several States. W. W. Greene.

Aircraft Insurance. Walter G. Cowles.

The Graduation of Frequency Distributions. Harry C. Carver.

Legal Notes. Richard Fondiller.

VOLUME VI NUMBER 14 PP. 268

Effect of the War Upon the Development of Social Insurance in This Country. B. D. Flynn.

Analysis of Health Claims by Disease. Robert J. McManus.

Notes on Poisson's Exponential and Charlier's Curves. A. H. Mowbray.

Technique of Rate Making as Illustrated by the 1920 National Revision of Workmen's Compensation Rates. G. F. Michelbacher.

Actuarial Problems of the 1920 National Revision of Workmen's Compensation Insurance Rates and the Solutions Developed by the Actuarial Committee of the National Council. A. H. Mowbray.

Legal Notes. Richard Fondiller.

VOLUME VII NUMBER 15 PP. 216

Review of Actuarial and Statistical Work in the Various Branches of the Casualty Insurance Business. B. D. Flynn.

Disability Benefits in Life Insurance Policies. J. H. Woodward.

Corporate Bonding. Ralph H. Blanchard and George D. Moore.

A Suggested System of Standard Notation for Actuarial Work in Workmen's Compensation Insurance. Sanford B. Perkins.

An American Accident Table. Olive E. Outwater.

Group Health Insurance. James D. Craig.

Legal Notes. Richard Fondiller.

PAPERS IN THE PROCEEDINGS

VOLUME VII NUMBER 16 PP. 263

The Casualty Actuarial Society as an Educational Institution. A. H. Mowbray.

A Study of Schedule Rating. Albert W. Whitney.

Distribution of "Shock" Losses in Workmen's Compensation and Liability Insurance. G. F. Michelbacher.

Premiums and Reserves for Non-Cancellable Accident and Health Policies. E. E. Cammack.

Non-Cancellable Accident and Health Insurance Underwriting Problems. J. M. Laird.

Legal Notes. Richard Fondiller.

VOLUME VIII NUMBER 17 PP. 176

Competition and Regulation of Rates for Casualty Insurance. A. H. Mowbray.

The Value of a Social Point of View in the Conduct of the Casualty Insurance Business. A. H. Mowbray.

Industrial Retirement Systems Based on the Money-Purchase Principle. J. H. Woodward.

The Development of Public Liability Insurance Rates for Automobiles A. L. Kirkpatrick.

Distribution of Surplus by Casualty Companies Writing Participating Insurance. William Leslie.

Classification of Risks as the Basis of Insurance Rate-Making, With Special Reference to Workmen's Compensation Insurance. A. H. Mowbray.

Legal Notes. Richard Fondiller.

VOLUME VIII NUMBER 18 PP. 185

Agricultural Insurance. V. N. Valgren.

Remarriage Experience of Pennsylvania Compensation Insurance Carriers Policy Years 1916-1919. E. H. Downey.

Mortality from External Causes Among Industrial Policyholders of the Metropolitan Life Insurance Company, 1911 to 1920. Louis I. Dublin and Edwin W. Kopf.

Observations on Pension Funds for Employes Rendered Permanently Disabled by Reason of a Second Injury. A. H. Mowbray.

Credit Insurance. John E. Gregory.

Legal Notes. Richard Fondiller.

PAPERS IN THE PROCEEDINGS

VOLUME IX NUMBER 19 PP. 176

The Future. A. H. Mowbray.

1922 Revision of the Industrial Compensation Rating Schedule. S. B. Perkins and R. A. Wheeler.

Some Aspects of the Compulsory Automobile Insurance Movement. Morris Pike.

The Allocation of Administrative Expenses by Lines for Casualty Insurance Companies. R. S. Hull.

Observation of the Trend of Wages and Employment by Payroll Audit Data. W. J. Constable.

Permanent Total Disability from Accidental Causes. W. N. Wilson.

Unemployment Insurance. Leo Wolman.

Legal Notes. Richard Fondiller.

VOLUME IX NUMBER 20 PP. 221

More Science in Casualty Insurance. Harwood E. Ryan.

A Procedure for Making Rates for Workmen's Compensation Insurance Based on a Consistent Application of the Theory of Probabilities. A. H. Mowbray.

Legal Limits of Weekly Compensation in Their Bearing on Ratemaking for Workmen's Compensation Insurance. A. H. Mowbray.

The New Rules Regarding Acquisition and Field Supervision Cost for Casualty Insurance. G. F. Michelbacher.

Insurance and Prevention. A. W. Whitney.

Some Observations on the Development of Manual Rates for Workmen's Compensation Insurance. S. B. Perkins.

Legal Notes. Richard Fondiller.

VOLUME X NUMBER 21 PP. 98

The Society and Its Relation to Ratemaking Associations. H. E. Ryan.

Allocation of Expenses. James D. Craig.

A New Experience Exhibit for Casualty Insurance Companies. H. O. Van Tuyl.

Miscellaneous Property Damage Insurance. S. D. Pinney.

VOLUME X NUMBER 22 PP. 161

The Present Outlook for Casualty Actuarial Science. William Leslie.

Determination of Acquisition and Field Supervision Cost by Lines of Business for Casualty Insurance. T. F. Tarbell.

Some Random Thoughts Concerning Fire Insurance. Is a Statistical Basis for Rating Possible? E. R. Hardy.

A Review of the Statistical Problems of Casualty Companies. S. D. Pinney.

The Past and the Future of Workmen's Compensation Ratemaking. A. W. Whitney and O. E. Outwater.

The Compensation Ratemaking Problem in the Light of the 1923-1924 Revision. W. W. Greene.

PAPERS IN THE PROCEEDINGS

INDEX TO THE PROCEEDINGS

JAMES S. ELSTON, Editor

The Index to the Proceedings of the first ten volumes (Numbers 1 to 22) comprises a general index of all the papers, discussions and book reviews presented by the members of the Society and an index to the Legal Notes which have been written for the past several years. The contributions of every member are shown in detail and each paper has been cross-indexed by title and by the principal sub-topics. This is the first index issued by the Society and is complete as respects all of the publications of the Society since its organization, Nov. 7, 1914 to Nov. 20, 1924. The index comprises 108 pages and is bound in buckram.

VOLUME XI NUMBER 23 PP. 190

Casualty Problems from the Public Viewpoint. William Leslie.

Origin of the Casualty Actuarial Society. I. M. Rubinow.

Relation of Casualty Actuarial Society to Other Scientific Organizations and to the Insurance World. James D. Craig.

Review of the Society's First Ten Years and a Glance Into the Future. B. D. Flynn.

Burglary, Theft and Robbery Insurance. G. F. Michelbacher and L. H. Carr.

The Needs and Prospects for an Educational Program in Insurance Law. Richard Fondiller.

Statistics in the Service of Insurance Administration. Edwin W. Kopf.

Actuarial, Statistical and Related Organizations in the United States and Abroad. Richard Fondiller and James S. Elston.

VOLUME XI NUMBER 24 PP. 181

A Survey of the Present Situation. G. F. Michelbacher.

Plate Glass Insurance. Fred S. Garrison.

Experience Rating In Rem and In Personam. Leon S. Senior.

State Regulation of Insurance Rates. Clarence W. Hobbs.

Automobile Rate Making. H. P. Stellwagen.

VOLUME XII NUMBER 25 PP. 204

On the Use of Judgment in Rate Making. G. F. Michelbacher.

Industrial Accident Rates in the Business Cycle. W. G. Voogt and A. H. Mowbray.

Statutory Requirements for Casualty Companies. T. F. Tarbell.

On the Tendency of Labor Saving to Increase Compensation Costs. Leslie L. Hall.

A Study of Judicial Decisions in New York Workmen's Compensation Cases. Leon S. Senior.

The Statistical Survey of the Massachusetts Commission Investigating the Question of Old Age Pensions. E. S. Cogswell.

Note on the Normal Probability Curve. Buckner Speed.

PAPERS IN THE PROCEEDINGS

VOLUME XII NUMBER 26 PP. 216

On Some Insurance Problems Incidental to Compulsory Automobile Insurance. G. F. Michelbacher.

Accounting Methods for Casualty Companies by Use of the Hollerith System. T. F. Tarbell.

Retirement Systems for Public Employees in New York State. R. B. Robbins.

The "Permanent" Rate Making Method Adopted by the National Council on Compensation Insurance. W. W. Greene and W. F. Roeber.

Remarks on Compensation Differentials. Paul Dorweiler.

An Educational Program in Economics for Insurance Students. E. W. Kopf.

Investments for Casualty Companies. H. A. Fortington.

The Function and Future of Industrial Retirement Plans. R. A. Hohaus.

VOLUME XIII NUMBER 27 PP. 146

Moral Hazard in the Field of Casualty Insurance. G. F. Michelbacher.

The Prognostic Value of Schedule Rating. C. N. Young.

Some Developments in Schedule Rating Since the Adoption of the Industrial Compensation Rating Schedule, 1923. H. F. Richardson.

Some Observations on Accident and Health Insurance. T. F. Tarbell.

Mathematics for Students of Casualty Actuarial Science. James S. Elston.

Selection and Training of Men for Casualty and Surety Field Positions. C. G. Hallowell.

Installment Purchase Accident and Health Insurance. R. O. Davidson.

The Interest of the Actuary in Stable Money. Norman Lombard.

VOLUME XIII NUMBER 28 PP. 218

A Message to and Concerning the Casualty Actuarial Society. Sanford B. Perkins.

Observations on Making Rates for Excess Compensation Insurance. Paul Dorweiler.

Health Insurance Hazards Reflected in Occupational Health Loss Ratios. Armand Sommer.

Compulsory Automobile Insurance, William J. Constable.

State vs. Federal Compensation for Longshoremen. Leon S. Senior.

The Early History of the Annuity. Edwin W. Kopf.

Guaranteeing First Mortgage Real Estate Bonds. William M. Greve.

Automobile Financing. Louis J. Hunter.

PAPERS IN THE PROCEEDINGS

VOLUME XIV NUMBER 29 PP. 220

Presidential Address of the Fourteenth Annual Meeting of the Casualty Actuarial Society. Sanford B. Perkins.

Method for Setting Up Reserve to Cover Incurred But Not Reported Loss Liability. Nellas C. Black.

The Function and Place of the Statistical Department in a Multiple Line Casualty Company. Joseph Linder.

The Position of the Reinsurance Company in the Casualty Business. Winfield W. Greene.

Premiums and Reserves for Deferred Payment Protection. John M. Powell.

Payroll Auditing. Donald L. Belcher.

Has the Industrial Accident Rate Declined Since 1913? Louis A. DeBlois.

Guaranteeing First Mortgage Real Estate Bonds. E. B. McConnell.

Instalment Note Guarantees by Surety Companies. Luther E. Mackall.

VOLUME XIV NUMBER 30 PP. 274

Is the Industrial Rating Plan a Necessary Part of the Workmen's Compensation Rating Structure? Sanford B. Perkins.

The Allocation of Adjusting Expense to Line of Insurance. William B. Bailey.

A System of Preparing Reserves on Workmen's Compensation Claims. A. N. Matthews.

Recent Developments With Respect to the Distribution of Workmen's Compensation Insurance Costs. Charles J. Haugh, Jr.

Interest Earnings as a Factor in Casualty Insurance Rate Making. B. D. Flynn.

Origin, Development and Practices of Livestock Insurance. Edwin W. Kopf.

Can Insurance Help the Unemployment Situation? I. M. Rubinow.

Financial Responsibility of Automobile Drivers. Edson S. Lott.

Life and Casualty Insurance in Japan and China. S. S. Huebner.

Livestock Insurance. W. A. Swain.

VOLUME XV NUMBER 31 PP. 136

Presidential Address of the Fifteenth Annual Meeting of the Casualty Actuarial Society. Sanford B. Perkins.

The Permanent Total Disability Provision in Life Insurance Policies. Edward B. Morris.

Compensation Reserves. E. Alfred Davies.

Claims. Charles Deckelman.

Claims. Herbert W. J. Hargrave.

Aircraft Insurance. Stephen B. Sweeney.

VOLUME XV NUMBER 32 PP. 160

Duties of the Present Day Casualty Actuary. George D. Moore.

Casualty Insurance Accounting and The Annual Statement Blank. Thomas F. Tarbell.

A Suggested Method for Developing Automobile Rates. H. T. Barber.

Recent Developments in Workmen's Compensation Insurance Rate Making. William F. Roeber.

Massachusetts Compulsory Automobile Liability Insurance. W. J. Constable.

The Relation of the Insurance Department of the Chamber of Commerce of the United States to the Casualty Insurance Business. Terence F. Cunneen.

VOLUME XVI NUMBER 33 PP. 282

New York Motor Vehicle Financial Responsibility Act. George D. Moore.

Trade Union Benefits and Our Social Insurance Problems. Rainard B. Robbins.

The Origin and Development of Reinsurance. Edwin W. Kopf.

Double Indemnity in Life Insurance Policies. Henry H. Jackson.

The Analysis of Expenses by the Use of Hollerith Cards. H. O. Van Tuyl.

Exhibits and Schedules of the Casualty Annual Statement Blank. Thomas F. Tarbell.

Relation of Accident Statistics to Industrial Accident Prevention. H. W. Heinrich.

VOLUME XVI NUMBER 34 PP. 167

A Review of the 1929 Casualty Business. George D. Moore.

Credibility and Automobile Rate Making. Roy A. Wheeler.

Statistical Methods for Casualty Companies by Use of the Eighty Column Hollerith System. Norton E. Masterson.

Notes on Exposure and Premium Bases. Paul Dorweiler.

Motor Vehicle Safety Responsibility Legislation. Austin J. Lilly.

VOLUME XVII NUMBER 35 PP. 160

Current Problems in Casualty Insurance Statistical Work. George D. Moore.

State Old Age Pensions in the United States. W. Rulon Williamson.

The Theory of the Distribution of the Expenses of Casualty Insurance. F. S. Perryman.

A Method of Testing Loss Reserves. W. P. Comstock.

The Actuarial Basis for Premiums and Reserves in Personal Accident and Health Insurance. James D. Craig.

Disability Insurance in Connection with Regular Life Insurance Contracts in Switzerland. Emile Marchand.

VOLUME XVII NUMBER 36 PP. 191

Unemployment and Insurance. Thomas F. Tarbell.

The Function of Administrative Statistics in Casualty Insurance. Robert S. Hull.

The New York Unit Statistical Plan; A Method of Preparing and Reporting Data and Analyzing the Carrier's Business. Charles M. Graham.

A Suggested Modification in the Policy Year Method of Compiling Experience Data for the Making of Automobile Insurance Rates. Joseph Linder.

The Place of Conservation in Insurance. Albert W. Whitney.

The New French Social Insurance Law. Albert H. Mowbray.

PAPERS IN THE PROCEEDINGS

VOLUME XVIII NUMBER 37 PP. 252

Some Responsibilities of Membership. Thomas F. Tarbell.

The Contract of Personal Accident and Health Insurance. Stewart M. La Mont.

Procedure in the Examination of Casualty Companies by Insurance Departments. Emma C. Maycrink.

A Method of Assembling and Analyzing the Data Reported under the Unit Statistical Plan. Mark Kormes.

On Variations in Compensation Losses with Changes in Wage Levels. Paul Dorweiler.

VOLUME XVIII NUMBER 38 PP. 279

Business Cycles and Casualty Insurance. Thomas F. Tarbell.

Criticisms and Answers. Gustav F. Michelbacher.

The Attitude of the Courts in Construing the Workmen's Compensation Act. Clarence W. Hobbs.

The Chemical and Dyestuff Rating Plan. Harry F. Richardson.

Marriage and Birth Insurances in France. Henri Balu.

VOLUME XIX NUMBER 39 PP. 214

The Effect of Changes in Values on Casualty Insurance. Thomas F. Tarbell.

Wisconsin Unemployment Compensation Act. William H. Burhop.

Ten Years of Rates and Rating Bureaus in Ontario, Applied to Automobile Insurance. John Edwards.

Some Notes on Credibility. F. S. Perryman.

Actuarial, Statistical and Related Organizations in the United States and Abroad. James S. Elston.

VOLUME XIX NUMBER 40 PP. 202

Reflections on Some Fundamentals of Casualty Insurance. Paul Dorweiler.

Is the Rate Making Plan the Chief Trouble with Compensation Insurance? Winfield W. Greene.

Aviation Casualty Insurance. W. P. Comstock.

Calculation of the Cost of Unemployment Benefits (with Particular Reference to Ohio and Pennsylvania). Clarence A. Kulp.

An American Remarriage Table. William F. Roeber and Ralph M. Marshall.

VOLUME XX NUMBER 41 PP. 254

Policy Limits in Casualty Insurance. Paul Dorweiler

Ten Years of Rates and Rating Bureaus in Ontario, Applied to Automobile Insurance. John Edwards.

A Realistic Plan for Determining Compensation Rate Levels. Leon S. Senior.

Correction of Certain Deficiencies in the Experience Rating Plan by the So-Called "Accounts Current" Method. Mark Kormes.

Rate Levels for Workmen's Compensation Insurance. F. S. Perryman.

On Indeterminate Reserve Tables for Compensation. N. M. Valerius.

VOLUME XX NUMBER 42 PP. 162

Some Aspects of Statistics in Casualty Insurance. Paul Dorweiler.
Suggestions for a Standard System of Notation in Casualty Actuarial Work. Thomas O. Carlson.
Incurred But Not Reported Claim Reserves. Thomas F. Tarbell.
Valuation of Investments. Joseph J. Magrath.
Index Numbers of Compensation Insurance Rate Levels. Paul Dorweiler and Nels M. Valerius.

SECOND INDEX TO THE PROCEEDINGS

James S. Elston, Editor

The Index to the Proceedings of the second ten volumes (comprising Numbers 23 to 42) comprises a general index of all the Papers, Discussions and Book Reviews presented by the members of the Society and an index to the Legal Notes. The contributions of every member are shown in detail and each Paper has been cross-indexed by title and by the principal subtopics. This is complete as respects all of the publications of the Society from November 20, 1924 to November 21, 1934. The index comprises 113 pages and is bound in buckram.

VOLUME XXI NUMBER 43 PP. 240

A Survey of Risk Credibility in Experience Rating. Paul Dorweiler.
Product Public Liability Insurance. James M. Cahill.
The Control of Accidents Through Workmen's Compensation Rating. Robert S. Hull.
Reports of Casualty Insurance—Loss Reserve Schedules. John R. Lange.
Comment on the Underwriting of Compensation for Silicosis. Robert V. Sinnott.
Compensation Expenses Per Policy. Harmon T. Barber.
The Experience Rating Plan as Applied to Workmen's Compensation Risks. Mark Kormes.
The Economic and Financial Outlook and the Casualty Business. Jules I. Bogen.
The Younger Generation. Thomas O. Carlson.

VOLUME XXI NUMBER 44 PP. 202

The Chief Trouble With Workmen's Compensation Insurance. Winfield W. Greene.
History and Present Status of Non-cancellable Accident and Health Insurance. John H. Miller.
A Statistical Analysis of the Benefit Provisions of the Compensation Acts. J. J. Smick.
Recent Developments in Commercial Accident and Health Insurance. Ward Van Buren Hart.
Commercial Accident and Health Insurance from the Standpoint of the Reinsurance Company. Howard G. Crane.

VOLUME XXII NUMBER 45 PP. 211

Broadening the Market for Casualty Insurance. Winfield W. Greene.
Distribution of Inspection Cost by Line of Insurance. Harry V. Waite.
Social Insurance and the Constitution. Clarence W. Hobbs.
Occupational Disease Cover in New York. Arthur G. Smith.
Group Rate Levels in Workmen's Compensation Insurance. M. H. McConnell, Jr.
The Experience Rating Plan as Applied to Workmen's Compensation Risks. Part II. Mark Kormes.

PAPERS IN THE PROCEEDINGS

VOLUME XXII NUMBER 46 PP. 200

Some Comments on Economic Theory. Winfield W. Greene.

The Extra-Territorial Application of Compensation Acts. Clarence W. Hobbs.

VOLUME XXIII NUMBER 47 PP. 134

State Monopoly of Compensation Insurance, Laboratory Test of Government in Business. Winfield W. Greene.

Deductible and Excess Coverages, Liability and Property Damage Lines Other Than Automobile. James M. Cahill.

Small Risks versus Large Risks in Workmen's Compensation Insurance. Mark Kormes.

On the Use of Synthetic Risks in Determining Pure Premium Excess Ratios for Large Compensation and Liability Risks. Paul Dorweiler.

VOLUME XXIII NUMBER 48 PP. 196

Social and Economic Factors Relating to Casualty Insurance. Leon S. Senior.

Can We Improve the Compensation Rating Method? Harmon T. Barber.

Automobile Insurance in the Province of Ontario. John Edwards.

Some Aspects of the Retrospective and Supplementary Rating Plans. Joseph J. Magrath.

Federal Jurisdiction and the Compensation Acts. Clarence W. Hobbs.

VOLUME XXIV NUMBER 49 PP. 232

An Outline of Current Problems in Workmen's Compensation. Leon S. Senior.

Social Budgeting. W. R. Williamson.

Pure Premiums for Compensation Insurance. Arthur G. Smith.

The Distribution of Casualty Administration Expense by Line of Insurance. Thomas F. Tarbell and Harry V. Waite.

Experience Rating Plan Credibilities. Francis S. Perryman.

VOLUME XXIV NUMBER 50 PP. 266

Principles of Equity Applies to Casualty and Other Forms of Insurance. Leon S. Senior.

Special Funds Under the New York Compensation Law. Grady H. Hipp.

Graduation of an American Remarriage Table for Joint Life Annuities. Edward Olifiers.

The Retrospective Rating Plan for Workmen's Compensation Risks. Sydney D. Pinney.

VOLUME XXV NUMBER 51 PP. 290

Experience Rating on the Road to Reform. Leon S. Senior.

Surety Rate Making. An Approach to the Subject. Edward C. Lunt.

Aviation Insurance. Barbara H. Woodward.

Watch Your Statistics. G. F. Michelbacher.

Tables Adapted for Machine Computation. Francis S. Perryman.

Problems in Relation to Contractual Liability Insurance. John W. Ainley.