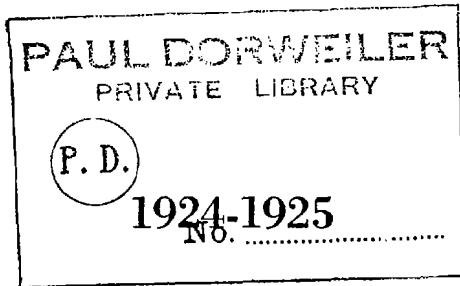


PROCEEDINGS
OF THE
Casualty Actuarial Society



Volume XI
Number 23—November 20, 1924
Number 24—June 5, 1925
1925 Year Book

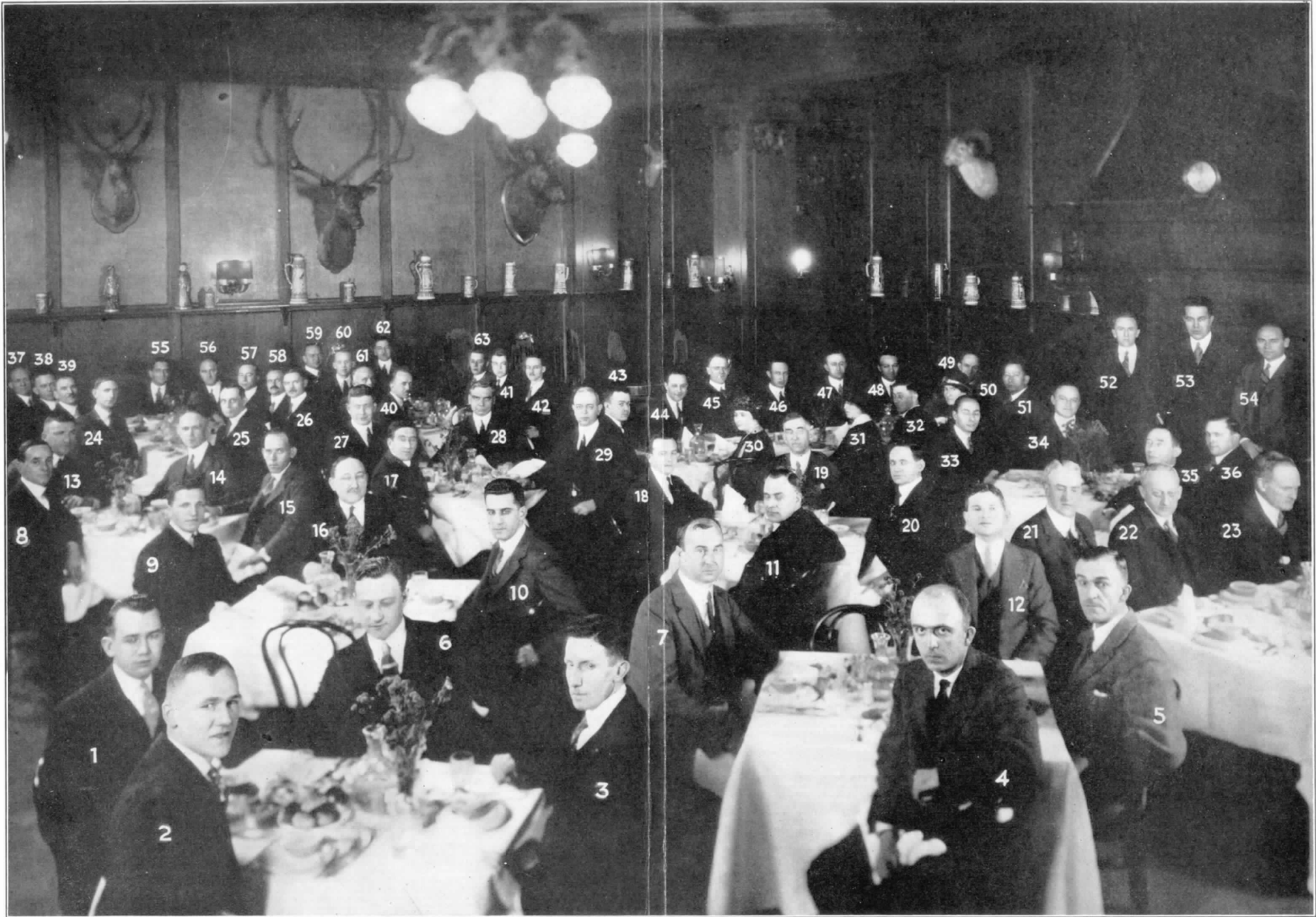
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CONTENTS OF VOLUME XI

	Page
ADDRESS OF THE PRESIDENT, William Leslie:	
"Casualty Problems from the Public View-Point"	1
ADDRESSES OF PAST PRESIDENTS:	
"Origin of the Casualty Actuarial Society." I. M. Rubinow.....	11
"Relation of Casualty Actuarial Society to Other Scientific Organ- izations and to the Insurance World." James D. Craig.....	21
"Review of the Society's First Ten Years and a Glance into the Future." B. D. Flynn.....	26
PAPERS PRESENTED NOVEMBER 20, 1924:	
I. Burglary, Theft and Robbery Insurance. G. F. Michelbacher and L. H. Carr.....	33
II. The Needs and Prospects of an Educational Program in Insurance Law. Richard Fondiller.....	99
III. Statistics in the Service of Insurance Administration. Edwin W. Kopf.....	102
ACTUARIAL, STATISTICAL AND RELATED ORGANIZATIONS IN THE UNITED STATES AND ABROAD. Richard Fondiller and James S. Elston.....	115
REVIEWS OF BOOKS AND PUBLICATIONS.....	153
CURRENT NOTES.....	170
OBITUARY.....	181
CASUALTY ACTUARIAL SOCIETY:	
Officers, Council and Committees.....	182
Minutes of Meeting, November 20, 1924.....	184
<hr style="width: 20%; margin: 10px auto;"/>	
ADDRESS OF THE PRESIDENT, G. F. Michelbacher:	
"A Survey of the Present Situation".....	191
PAPERS PRESENTED JUNE 5, 1925:	
I. "Plate Glass Insurance." Fred S. Garrison.....	200
II. "Experience Rating <i>In Rem</i> and <i>In Personam</i> ." Leon. S. Senior.....	211
III. "State Regulation of Insurance Rates." Clarence W. Hobbs.....	218
IV. "Automobile Rate Making." H. P. Stellwagen.....	276
REVIEWS OF BOOKS AND PUBLICATIONS.....	293
ACTUARIAL AND STATISTICAL NOTES.....	333
CURRENT NOTES.....	345
CASUALTY ACTUARIAL SOCIETY:	
Officers, Council and Committees.....	363
Minutes of Meeting, June 5, 1925.....	365
INDEX—VOLUME XI.....	368
1925 YEAR BOOK.....	373

NOTICE

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



MEMBERS PRESENT AT THE TENTH ANNIVERSARY DINNER

TENTH ANNIVERSARY DINNER

The photograph in this number of the *Proceedings*, shown on the preceding page, was taken on November 20, 1924, at the National Republican Club, New York City. The occasion was the dinner held on the evening of the meeting to commemorate the tenth anniversary of the Society. Unfortunately, the photographer failed to include all of the members present, but those included are designated by numbers, as follows:

Number	Number
1 CORCORAN	ACKER 10
2 BREIBY	BARBER 60
3 MONTGOMERY, J. C.	BEHA 53
4 GREENE	BLACK, N. C. 39
5 HALL, L. L.	BLACK, S. B. 36
6 HESS	BREIBY 2
7 SMITH, C. G.	BUDLONG 25
8 FARRER	COMSTOCK 11
9 PIKE	CONSTABLE 62
10 ACKER	CORCORAN 1
11 COMSTOCK	DAVIS, E. M. (MISS)..... 30
12 FONDILLER	DEUTCHBERGER 16
13 McMANUS	DORWEILER 48
14 HULL	ELSTON 27
15 FALLOW	FALLOW 15
16 DEUTSCHBERGER	FARRER 8
17 MILLIGAN	FONDILLER 12
18 PALLAY	GINSBURGH 33
19 WARREN	GLOVER 51
20 SAWYER	GRAHAM, C. M. 42
21 LAWRENCE	GREENE 4
22 MAGOUN	HALL, H. L. 57
23 WHITNEY	HALL, L. L. 5
24 VAN TUYL	HENDERSON 28
25 BUDLONG	HESS 6
26 OTIS	HULL 14
27 ELSTON	LAWRENCE 21
28 HENDERSON	LESLIE 52
29 STRONG W. M.	LINDER 44
30 DAVIS, E. M. (MISS)	McMANUS 13
31 UHL (MISS)	MADDRILL 38
32 MICHENER	MAGOUN 22
33 GINSBURGH	MATTHEWS 41
34 WHEELER	MELTZER 55
35 SENIOR	MICHELbacher 54
36 BLACK, S. B.	MICHENER 32
37 NICHOLAS	MILLIGAN 17
38 MADDRILL	MONTGOMERY, J. C. 3
39 BLACK, N. C.	MOORE, G. D. 58
40 SMITH, A. G.	NEWELL 46
41 MATTHEWS	NICHOLAS 37
42 GRAHAM, C. M.	OTIS 26
43 RICHTER	OUTWATER (MISS) 49
44 LINDER	PALLAY 18
45 YOUNG, C. N.	PENNOCK 47
46 NEWELL	PERKINS 59
47 PENNOCK	PIKE 9
48 DORWEILER	RICHTER 43
49 OUTWATER (MISS)	ROBBINS 50
50 ROBBINS	SAWYER 20
51 GLOVER	SCHETTIN 56
52 LESLIE	SENIOR 35
53 BEHA	SMITH, A. G. 40
54 MICHELbacher	SMITH, C. G. 7
55 MELTZER	STOKES 63
56 SCHEITLIN	STRONG, W. M. 29
57 HALL, H. L.	UHL (MISS) 31
58 MOORE, G. D.	VAN TUYL 24
59 PERKINS	WARREN 19
60 BARBER	WHEELER 34
61 WILKINSON	WHITNEY 23
62 CONSTABLE	WILKINSON 61
63 STOKES	YOUNG, C. N. 45

PROCEEDINGS

NOVEMBER 20, 1924

CASUALTY PROBLEMS FROM THE PUBLIC VIEW-POINT

PRESIDENTIAL ADDRESS, WILLIAM LESLIE

This meeting, commemorating as it does the tenth anniversary of the founding of the Casualty Actuarial Society, is a momentous occasion. It is highly appropriate that we take advantage of the opportunity which it affords to pause for a moment in our busy round of duties and take stock of our Society and its relation to our life work. To present a clear and complete picture of the developments of the past decade in casualty actuarial science would impose a task upon your president which is beyond his ability. It would require not only a careful research and studious analysis but, what is much more important, a certain detachment which is essential to obtain the proper perspective. Confronted as we are with the daily contact with what seem to be the same old problems, it is hardly likely that any one individual could get himself in a frame of mind to properly estimate, let alone portray, the significance of the many events which have transpired. With rare good judgment, the Program Committee has rendered it unnecessary for me to undertake such a difficult and well-nigh impossible task. The burden has been distributed among the past presidents of the Society and at the proper time they will divide the task and the pleasure of first carrying you back to memories of days gone by when things were not as they are today and then carrying you on to anticipations and expectations of greater things in the future through continued work and service in the cause of casualty actuarial science. Through it all, they will keep you reminded of the important part which a Society of this sort plays in the stimulation of ambition and effort, in the education and development particularly of the younger men and in the wide-spread dissemination of accurate information respecting the science of casualty insurance.

In my previous presidential address, I touched upon the fact that in rate-making for casualty insurance there was a marked tendency for the dividing line between actuaries and underwriters to grow less distinct and suggested that this was a natural and logical result of the application of scientific methods to the rate-making problems. That there are often marked differences of opinion between actuaries and underwriters is of no greater significance than are the disagreements among the actuaries themselves. These differences may spring from two sources, one, the honest difference of opinion regarding the interpretation of the facts, and the other, the selfish difference in view-point from which the problems are approached. The former is a healthy condition and its presence is an augury of progress and further strengthening of scientific methods. The greater exactitude with which statistical material is prepared and the effort that is made to avoid conjectural factors are illustrative of the accomplishments for which this critical attitude is responsible. The differences in view-point, so far as they are based upon differences in self-interest, are responsible for most of the unfortunate disagreements—unfortunate in the sense that they usually do not lead to progress but, on the contrary, tend to retard the development of proper methods and to weaken the position of casualty actuarial science. It is on the merits and possibilities of approaching our problems from a common view-point that I wish to dwell briefly.

Casualty actuarial science is not an exact science. Of necessity it deals with approximations and wherever approximations enter they must be supplemented by the exercise of judgment. Basically, our science is nothing more nor less than a scientific method of approaching the solution of problems which, by their changing nature and the character of the facts available, yield several possible solutions. Our primary concern as actuaries is to see that the fundamental laws of the theory of probabilities are observed and that the reasoning by which any particular solution is selected follows logical principles and proceeds from a fact basis. But this involves a certain difficulty because of the human equation.

The point of view from which one approaches the subject, may easily determine the character of decisions which one favors as proper. If the same view-point is sustained throughout, a set

of solutions would be selected which would be consistent with one another and which, purely from the scientific aspect, would be as unassailable as any others. Obviously, any different set of solutions, selected to conform to a different view-point, could be just as correct from their purely scientific aspect. The decision as to which set should be retained, thus hinges not upon the comparative theoretical niceties of the two lines of reasoning, but upon the choice of a view-point. Hence, many of the problems involved in rate-making are bound to develop differences of opinion among men of equally high scientific standing and ability and the opportunity is thus offered for the final decision to savor largely of compromise between their conflicting points of view.

Results obtained by methods of compromise always contain weak spots. At times compromises are absolutely essential in order to avoid stagnation but they seldom represent permanent solutions. In the "give and take" process, the thing which is produced this year as a scientific answer to a problem could be reversed quite as easily next year as the result of a new compromise. It is extremely difficult for outsiders to grasp the fact that differing solutions of the same problems can each be based upon scientific reasoning and it is impossible for the public to distinguish between changes produced by new compromises and those which represent the real developments of actuarial science. The result is a decided weakening of the influence of scientific methods and the imposition of an unnecessary handicap in the conduct of our public relations. We know that there are even many casualty executives who believe that there is too much science employed in rate-making and that better results would be obtained if statistics and the experience of the past were relegated to a less important place. Those who hold that view have missed the real point. What is needed is not less science but more emphasis upon the importance of a common point of view followed by a consistent selection of the scientifically obtained solutions that conform to that point of view.

Consistency is the greatest thing to strive for today in the casualty field. To obtain it we must be able to agree upon the point of view from which we will approach the problems before us and then stick to that point of view whether or not we like it in individual instances. For many reasons it has seemed that

the common point of view should be that of the public and not that of any single class of insurance carriers. Expressed in another way, this means that the best interests of the business as a whole are served by considering our problems from the single view-point of the public at large rather than from the varying view-points of carriers or classes of carriers that serve only certain sections of the public. This does not mean that the proverbial desire of the buyers of insurance to get their insurance for as little as possible should govern but rather that the broader public view, which seeks justice for the companies as well as for the policyholders, should prevail. As one reason, it has seemed that this is the only view-point on which one could ask for a universal meeting of minds. Any consistent course involves at times advantages or disadvantages to various carriers or classes of carriers and requires subordination of self-interest on the part of such carriers. No group of carriers would agree to accept the view-point of another group as the one to follow consistently. On the other hand, all groups have shown a willingness to lay aside shortsighted self-interest and approach these problems in a disinterested frame of mind. Therefore, let us always try to work for solutions that can be accepted by all classes and groups of carriers, when viewed from the broad aspects of the good of the business as a whole.

As another reason, it has been proved to be good practical business to take the public view-point on problems such as ours. After all, it is the public with whom we do our business. The more our methods and practices conform to their views the more amicable will be our relations and the smoother will our business be run. You all know the experience of most of the American exporters who have attempted to capture the South American trade. They have taken their admittedly superior articles and offered them at attractive prices only to find that European competitors got the orders. The South American either didn't like the container, or the color, or the shape or some other feature of the American's product. The American made no study of the likes, dislikes or peculiarities of his customers. Convinced in his own mind that his product was the best on the market, he felt that the whims of the buyer were unimportant. But he lost the trade to the exporters of other countries who made it their business to study the desires and peculiarities of their buy-

ing public and furnish a product which satisfied those desires. Therefore, let us not sacrifice anything of sound scientific value in the solution of our problems, but let us attempt to approach each problem in a disinterested manner and endeavor to select from the several available solutions that one which is most acceptable from the public view-point. This course will combine sound scientific principles and good business.

Although it may be somewhat unfortunate in a presidential address to go from the general to the specific and at the same time uninteresting to those of our members who are not in contact with compensation problems, I feel it will be worth while to point these remarks by reference to some recent developments in methods of pure premium selection, which it seems to me illustrate quite strikingly the valuable results that flow from subordinating the view-points of individual companies or classes of companies and substituting for them a single disinterested view-point.

In the earlier general rate revisions, it was the practice to have pure premiums selected by a committee of underwriters. This committee was furnished with an exhibit of the countrywide experience, combined upon some common cost level. The pure premiums indicated by the experience were shown and it was the committee's job to analyze those indications for the purpose of determining what pure premiums to select. What classes should be combined; what exceptions should be made for states and groups of states; what experience should be excluded in determining the national pure premiums; and, finally, how far the actual experience should be followed, were all questions which this committee had to answer. The task was tedious and usually long drawn out. A committee member who had been away from his office for four days and wanted to get the five o'clock train home was in a much more compromising mood than at the beginning of the week's work. After struggling for three-fourths of the day over a single point, the whole committee would put on steam to make up for lost time, and pure premium selections would be made for the rest of the day with considerably more haste than care. Perhaps some committee member was particularly interested in one or more classes. If so, he made it his business to see that the class or classes received thorough consideration—perhaps considerably more than the majority

received. These and other similar shortcomings of the committee method have led to the adoption of different mechanics in the selection of pure premiums.

Under the new procedure, the experience is reviewed by a group of disinterested persons who make tentative selections for the final review of the committee of underwriters. In the National Council the work is done by the executive staff, comprising men with underwriting, actuarial and engineering training and experience. The results are submitted to the committee members in advance of the meeting and only those classes are discussed upon which the committee members raise specific questions. In the general rate revision of 1923-1924 the national pure premiums recommended by the Council staff were accepted without change in about 95% of the cases. In a recent review of pure premiums for the State of New York the staff of the Council and the staff of the New York Compensation Inspection Rating Board made a joint study of the experience, and their pure premium recommendations were adopted by the committees of review in all but sixteen cases.

There are certain quite obvious advantages attached to this method of procedure. It requires less time on the part of committee members, thus producing a dollars and cents saving to their companies and making committee membership less of a burden. It frees the committee members from a vast amount of routine work, thus permitting concentration on the really difficult matters. But the character of the results obtained by the method are really the strongest argument in its favor. Not that the disinterested group, which makes the preliminary review, is better equipped, or necessarily even as well equipped, in point of knowledge as the committees of company representatives, but that their very disinterestedness enables them to apply to all the problems a common view-point, which is probably as near the public view-point as could be secured. This group has no conscious or unconscious favorites among the several classifications. There is no line of business in which it has a special interest. Consequently, it is better fitted to deal impartially with every class in its turn, applying to each the same principles and standards of judgment, so far as may be humanly possible.

The companies and the committees which represent them want

just that sort of impartial consideration applied to the task of pure premium selection and experience has shown that committees are unwilling to change the recommendations placed before them unless incontrovertible additional information is produced or greater knowledge of the hazards and processes of a certain industry shows that the recommendation is wrong. Even then it must be demonstrated to the committee that the change does not depart from the uniform view-point from which every class has been considered.

No one disagrees with the desirability of uniformity in the methods by which pure premiums are selected. It is merely carrying out on a larger scale the same principles which have led to the prohibition of unfair discrimination between individual risks of like hazard. It is an attempt to differentiate between class hazards in a consistent manner, so that the derivation of every rate can be demonstrated to be the result of applying a single set of principles. Naturally, therefore, the thought arises, why not apply to the determination of classification pure premiums, the same mechanical methods that are employed in determining experience modifications for individual risks? Such a step would have much to commend it.

At present in determining class rates, no difficulty exists where the exposure is sufficiently great to justify adopting the actual indications of the experience. The trouble enters when classes are reached which have less than an admittedly adequate exposure. In selecting national pure premiums the difficulty of insufficient exposure is minimized because the use of country-wide experience for several policy years, together with the combination of the experience of classes having analogous hazards, reduces the instances of an admittedly inadequate exposure to a small number. For this small number of cases there is no recourse but to use judgment in establishing pure premiums. But when it comes to the point of making exception pure premiums for the several states or sections of the country upon the basis of their own experience, a very difficult problem is presented. What volume of state experience is necessary in order to follow the state indications instead of the national? What should be done about the classes with less than the volume of experience that is recognized as providing an adequate exposure? Should the national indications be followed willy nilly, or should

pure premiums be selected somewhere between the state and the national indications? If the latter course is pursued, how can consistency be maintained unless a formula is employed which gives an automatic measure of the relative credibility of the state's experience and thus determines the point between the state and national indications at which the pure premium should be placed? If the latter course is not pursued, are you not violating sound principles, because if you are justified in departing from the national indications in the case of classes having an adequate exposure, you must attach some credibility to the variations of the state from the national experience in the classes with smaller exposures. In other words, we cannot properly argue that the measure of credibility goes from 0 to 100% in one jump and that there are no measures lying between its two limiting values.

Looking at this problem from the view-point of the public at large, it would thus seem necessary as the next step in the development of pure premium selection to determine actuarially the credibility to be assigned to various exposures and determine state exceptions in a manner wholly comparable to that employed in experience rating an individual risk. In fact, this method has been utilized to some extent in liability rate-making by the National Bureau of Casualty and Surety Underwriters and its possible use in the compensation field is not a new idea by any means. But there is a still further ramification of the basic idea which is worthy of serious thought and study.

We find that there is a great deal of sentiment in favor of following the state experience exclusively. The unavoidable complexities that are involved in using national experience, together with the existence of, what to the uninitiated seem to be, apparent contradictions between the experience and the results, produce upon first presentation an unfavorable reaction, that is a result that is extremely difficult to overcome. A typical situation that develops from the use of national pure premiums is the following: The aggregate experience of the state justifies a 10% increase in rates. The final rates produced for the state give just this average increase of 10%, but it is made up of increases and decreases of varying percentages in individual classes, depending upon the indications of the national experience in those classes where the state experience has been considered

insufficient to furnish dependable indications. Some of these classes will show increases far above the average of 10% and yet when the state experience is examined it is found that many of them were carried very profitably even at the old rates. On the other hand there will be classes on which the rates actually have been decreased in the face of state experience showing experience much more adverse than the average. Of course, the lack of dependability of the state experience, because of its limited volume, is an excellent theoretical answer to any objections raised to these results and no one can charge that there has been any inconsistency in the methods employed. But if some other method can be employed that is also theoretically sound and that better satisfies the premium paying public, should we not look at the matter through their eyes and adopt the method which is most readily understood by them?

The National Council on Compensation Insurance is now making a thorough investigation of rate-making methods. The investigation was started primarily to ascertain the proper method of establishing rate levels. But this related problem of pure premium selection has been impressed so forcefully during the past year, that a concurrent attempt is being made to find a solution that will be at least as scientific as the present and considerably simpler and more popular.

The idea upon which the investigation is proceeding is based upon the principle, which is to be substantiated by test or modified to fit actual conditions, that the general level of rates for a state shall be determined by its own experience and the indicated average increase or decrease shall be distributed among the several classifications by the mechanical application of a formula. The probable procedure would be quite simple. It would merely involve a comparison between expected and actual class losses for the state, both being upon the new level of cost. The extent of departure from the old rate in the direction indicated by the experience would be determined by the credibility of the experience. As in experience rating this credibility would depend upon the exposure.

Obviously, there may be practical difficulties that will be revealed upon test and it remains to be seen whether they can be successfully overcome. It also may be necessary to "temper justice with mercy" and suggest the use of this mechanical

method merely as a first approximation to the final answer, inserting as another step the individual review of the classes with the more adequate exposures in order to determine whether in all cases the experience is a proper guide to the final rate.

The object in mentioning this subject in its present immature stage of investigation, is merely to illustrate the character of undertakings that suggest themselves when we consider our rate-making procedure from the view-point of the public. It is not necessary that this procedure should involve less work than present methods as it will be fully justified if it produces state rates that are satisfactory measures of risk hazard and that are more in accord with the views of the purchasers of insurance. If the tests do not justify the adoption of the method or if other impracticable aspects develop, there is at least the satisfaction of knowing that an actual attempt has been made to investigate its possibilities, which, in itself, should be accepted by the public as evidence of the cooperative attitude of the carriers. If the method in the form suggested or in some modified form should be found practicable and adopted, the results, together with their statistical basis in dollars and cents terms, could be presented in simple and understandable form and, hence, should appeal to the public, the field representatives of the companies, and the home office executives. In the classes with a fair volume of state experience, the new rates would generally lie somewhere between the old rates and the indications of the state's own experience. In classes with a meagre volume of state experience, the change in rates would be practically identical with the average change in rate level. This would facilitate explanations as the results would not contain apparent contradictions.

In conclusion, let me repeat that it should be our endeavor to approach all our problems from a broad common view-point from which individual self-interest has been eliminated and to base our entire rate-making structure upon a uniform set of solutions which we know is the result of sound scientific methods but which, at the same time, is in keeping with enlightened public opinion.

ORIGIN OF THE CASUALTY ACTUARIAL SOCIETY

BY

I. M. RUBINOW

It is unnecessary for me to say how much I appreciate this opportunity to renew my contact so long interrupted with the members of the Casualty Actuarial Society, as well as the honor of being the first in the part of to-day's program to be contributed by the past Presidents. The occasion of the celebration of the tenth anniversary is of such importance that I feel that I owe this meeting my humble apologies for not coming prepared with a careful paper, such as the occasion deserves. My only excuse is the preoccupation, resulting from an effort to work simultaneously in the two fields of social service and casualty insurance, for it is no secret that of all the past presidents of the Casualty Actuarial Society I have been more past than the others during the last five years. And only comparatively recently have I succeeded in re-establishing my contact with the field of insurance.

The subject assigned to me today is that of the "History of the Origin of the Casualty Actuarial Society." The writing of scientific history is not an easy matter. Contrary to the general impression, eye witnesses, no matter how honest, are not the best historians for frequently they lack the necessary detachment. Critical history requires a perspective and perspective requires time. For this reason I doubt whether I shall be able to give you an unbiased story of the origin of the Casualty Actuarial Society. The best I can do is to enter into reminiscences. However, reminiscences have their historic value. They usually constitute part of the material upon which critical history is built.

It is always a problem as to how far any individual or group of individuals have been responsible for any historic development. The old philosophy of history insisted that there must be a certain logic in the development of institutions, and always a claim can be made that the necessities of the situation are responsible for the creation of institutions and that the individuals who seem to be doing the work are only pawns in the hands of this inexorable logic. And yet, human beings do not cherish the thought that they are merely pawns in the hands of blind fate. It is,

therefore, quite natural for myself and those who with me had been active in 1914, to feel that in the organization of the Casualty Actuarial Society we have been instrumental in making a definite contribution. How much of this point of view may be explained by the usual conceit of a reminiscing person must be left to others to judge.

In fact, so often does this problem arise in history, so often does the development seem to go contrary to any historical or philosophic logic, that one can notice a definite re-action in the philosophy of history, and the growth of a point of view that after all history can do no better than to record a succession of events as they actually occur, without any definite claims as to why or how.

There can be no question that in addition to the individual efforts, the proper soil is necessary for a new institution to grow even after the seed has been planted. Such soil was furnished by the compensation legislation beginning with 1911, and yet there is reason to think that except for the efforts of a few individuals the soil alone would not explain the origin of the Casualty Actuarial Society. I am thinking of England as an illustration. The compensation situation in this country in 1911-14 was perhaps not very much different from that in England ten years earlier. Surely, English industry and English insurance business were as much baffled by the new problems of compensation insurance as were the States ten years later. And yet, it seems to be an extremely significant fact that not only then but even for the 20 years which followed, England has not created a casualty actuarial society and as a result has not created a casualty actuarial science. So that within half the period the American insurance business has made very much more scientific and practical progress than has England, and now English insurance actuaries must come to American students for the solution of their problems. This has been largely due to ten years' work of the Casualty Actuarial Society.

How did the Society come to be? Perhaps through an accident, if you will. It may be assumed or granted that I had something to do with it. How did I happen to come into the casualty insurance business? This may sound somewhat egotistic, but after all, that is the usual failing, and perhaps the virtue, of reminiscences of eye witnesses who persist in considering themselves in the

center of historic events. Sometimes I am inclined to blame the Metropolitan Opera House for entering the casualty business, and for all the dire consequences both to me and to the business which followed. It was after eight years of service in the Federal government, after having reached "the pinnacle of success" which in terms of dollars and cents represented then and would represent even now a very modest figure. I had come to New York to interview a friend of mine connected with a large life insurance company, and to suggest to him as tactfully as I could that I was ready for something better or at least for something that paid better. As he evidently felt that I knew nothing of insurance and, therefore, was more fit for the casualty than for the life insurance field, he suggested that I see the manager of a large casualty insurance company. It was on a nice winter afternoon, and the Metropolitan Opera was to present *Madame Butterfly*, an opera I am inordinately fond of. The question whether it was worth while giving up the opera for the sake of a problematic interview was not an easy one, but fortunately or unfortunately the Opera bill was changed, and so I thought I might as well go and see the insurance manager. And as a result of this interview, a week later came my appointment as Chief Statistician of the Ocean Accident & Guarantee Corporation.

Now all levity apart, it isn't simple egotism that moves me to tell this story. The fact that being without any insurance experience and practically without any business experience, I succeeded in obtaining this appointment, was I believe significant. There must have been something in my previous training that appealed to the manager of the casualty insurance company. Remember, this happened early in 1911 when there was not yet a single compensation law in effect, outside of the Act of 1908 providing compensation for a small body of Federal employees, an act in the administration of which I had some experience. The first New York compensation act had been declared unconstitutional. The New Jersey compensation act had not yet passed. Nevertheless, it was the fact of my having devoted three years to the study of foreign compensation and workmen's insurance legislation that undoubtedly influenced the insurance company. And I believe that the farsightedness of the manager in seeing that compensation was destined to play a tremendous part in the development of casualty business, and the anxiety to

include in the staff people familiar with this new form of insurance, is worthy of being recorded. It is true that not all practical insurance men in 1911 were equally farsighted. Few will remember and fewer will admit that only 10 or 15 years ago they were actively opposing the extension of the compensation principle, which during these few years has become by far the most important branch of casualty business.

Now this happened in 1911 and the Casualty Actuarial Society was not organized until the fall of 1914. There can be no question but that the organization of the Society was forced by the compensation legislation of 1911, '12, '13 and particularly '14, and the pressure of the problems that were arising almost daily, particularly in connection with the administration of the New York Compensation Act of 1914. It was this pressure that created the Compensation Bureau and its various committees, its statistical committee, its law differentials committee, its committee on classification of industries, and the co-operation of these various committees with the underwriters for the sake of arriving at some honest, objective and safe basis for compensation insurance rates. As I read the latest issues of our PROCEEDINGS and its complicated formulas, based sometimes upon higher mathematics, particularly as I look at this audience and see so many younger faces, I wonder how many now remember the excitement that prevailed when these compensation acts began to come thick and fast. Nobody seemed to know just what was going to happen. Many insurance people thought that they knew that something very catastrophic was going to happen to the insurance business. Again to become reminiscent and personal, I remember my first article on compensation, which Mr. Marsh accepted for the *Economic World*. I remember the very unfavorable criticism which this article called forth because I assumed, and in my innocence blandly stated, that employers' liability was doomed and workmen's compensation was coming. The greatest excitement prevailed after the passage of the New York Compensation Act. The compensation benefit scale was so much higher than that of all preceding acts and in addition was so indefinite because of the new conception of life benefits for permanent disabilities, that several companies including my own had almost decided at the time to write as little New York compensation as possible, lest the unexpected hazards might

bring the company to bankruptcy. It is only a just pride of our profession that moves me to say that it was the statistical profession (we did not speak so glibly of compensation actuaries then) that saved the day. Remember that statisticians of casualty insurance companies were not considered very much more important than head clerks. The statistical departments were barely tolerated out of sheer necessity, being wholly unproductive departments. Many insurance companies conceived of the main function of those departments as keeping accurate records of individual risks. Rates were largely made by underwriters and any advice on the part of the statistician would have been considered a presumption. Yet here, a sudden situation developed; not only the insurance companies but even the insurance departments were completely at a loss as to how to arrive at New York rates on a basis of a very limited Massachusetts experience. Then came the Standard Accident Table which may be out of date now but has stood the test of time for all practical purposes for nearly a decade. Then also came the theory of law differentials, and a set of basic and state rates which however inaccurate they may appear now, at that time offered at least an impartial ground for discussion. And then also came as a by-product the very close cooperation of statisticians of all the important casualty companies and the rapidly growing recognition that they were the only body of people competent to work out the set of principles which were destined to play an important part in the development of insurance. And out of these meetings of various committees, friendly meetings notwithstanding the variety of opinions represented by the constituent companies, came the call for the organization of our society.

We had a rather difficult time. I remember when we sent out our first circular, offering the membership for nothing, membership for which you now have to pay with at least two years of hard work in passing examinations which many of us older Fellows might not be able to pass (and perhaps that is why we never received those handsome diplomas which were distributed this morning to the successful Fellows), and we were wondering if this offer were sufficiently attractive and whether we would be taken sufficiently seriously. It was a pleasant surprise to find how many did jump to the conclusion that it was a good thing to organize. Undoubtedly, much credit is due to those who were

willing to sign that first circular and among whom are found the most important, most competent and most influential members of the casualty business and of this Society.

And after we had gotten together the list of members, the serious question arose, "What are we to do at the first meeting?" Papers, of course, appeared necessary. But there seemed to be very few people in the group who were in the habit of making scientific studies and of putting those studies down systematically on paper. Perhaps the very modest appearance of the first issue of the PROCEEDINGS will suggest to you the difficulties we had to face. It might have been easy to grow pessimistic and to assume that the casualty business did not possess the necessary ability. It was the faith of the organizers, as well as the medium offered by the meetings and by the PROCEEDINGS that very quickly proved how unjust such pessimism was. It is true it was at first difficult to induce men to write papers. There was even the feeling, not so much among ourselves as among the executives, that we had no right to give away any secrets which we might have learned in our service for individual companies. But gradually, even that was overcome. It was but natural, in view of the fact that the Society arose out of the needs of one particular line of business, that of workmen's compensation, that for some time it should have been limited to this field. Compensation grew in importance and has now become proportionately even more important than it had been at any time before. And yet, I believe credit is due to the farsightedness of the original sponsors of the society in definitely announcing from the very beginning that it was to cover all the casualty lines and the study of the 10 volumes of PROCEEDINGS which have appeared since 1914 and the review of which represents the duty of the next speaker clearly indicates that our prediction was correct and that there is no branch of the casualty insurance business that failed to get at least some recognition under the stimulus of these meetings and our PROCEEDINGS.

It isn't my duty to make an analysis of the development of casualty insurance business during the last 10 years, but there is just one point I want to draw to your attention, one thought I want to throw out at this opportunity. I want to remind you, and particularly the younger members of this Society, that when it was organized in 1914 it was not only the Casualty Actuarial

Society but the Casualty Actuarial and Statistical Society of America, the C. A. S. S. A. We were rather proud of our "Cassa." Perhaps we may have thought it a particularly good term because in some languages it means the cash box. What I am going to say may appear like a criticism but it is not meant to be one. It is not up to one who is on the outskirts of the business to lay down the rules for those whose entire time is now devoted to the casualty insurance business and the actuarial problems connected with it. But, I want to explain the reason why I had a definite sense of loss when I learned of the change in name. It may not be necessary to raise the question why the last two words were omitted. Surely I do not mean to introduce any doubts as to the American patriotism of those responsible for it. Yet, presumably it is not impossible that a similar society might be organized in England. But that is a minor matter. The exclusion of the word "statistical" in my opinion is not. There seems to me sufficient difference between the actuarial and the statistical method to justify the preservation of both words in the complete name of the Society.

Of course, from one point of view the actuary includes the statistician, or at least the actuarial science may be claimed to include statistics. At least the actuaries are often inclined to think so. In some insurance companies, particularly in life insurance companies, the statistical department is a branch of the actuarial department, and the statistician subsidiary to and under orders of the actuary. This is simply for the reason that the actuary finds that he can make no steps in the solution of his problems without properly prepared statistical material. Of course, there may be in addition, a somewhat more obvious reason in the difference of remuneration paid to actuaries and to statisticians.

That, however is not the entire story. If the actuary must take the statistical material and run it through its own actuarial machinery, so to speak, before the necessary results are obtained, it is equally true that there is a very large amount of statistical material for which the actuary may have no use at all and which may be very important not only for the business but for the development of insurance science. The two fields of actuarial and statistical science are undoubtedly overlapping, but they do not altogether coincide, and it would be a very great

pity if the change in the name of the Society were to lead consciously or unconsciously to the exclusion of such statistical problems which had or seemed to have no actuarial bearing.

For after all, what is the essential field of actuarial science? It is the application of mathematics to experience for the purpose of furnishing accurate, fair or at least reasonable insurance rates. That this is a matter of very great importance, no statistician and not even a layman would deny. But, after all, is the insurance rate all there is to the science of insurance? Is the insurance rate the limit of interest society has in the development of insurance business and insurance science? Here, again, a certain detachment does, I believe, help towards a fairer point of view. The insurance actuary is so engrossed by the exigencies of the situation in the preparation of rates that he may disregard many other, perhaps more important, considerations. Many other problems are of greater importance from a general economic or social point of view. This becomes the more obvious to an outsider. Your president this morning, in speaking of the public aspects of insurance actuarial work, emphasizes the growing tendency towards rate supervision and control. Not for a moment do I intend to deny the very great importance of this tendency. But, after all, the public's interest in the development of the insurance business and the social scientist's interest in the development of insurance science, are not limited to problems of premium rates. After all, the premium is the price for service rendered. Prices of all things fall and rise. Prices of most things fluctuate a good deal more than do the insurance premium rates. An organization I am connected with pays for its compensation insurance the modest amount of \$88, being a rate of \$.11 on a payroll of \$80,000 per annum. The actuarial problems involved in the computation of a rate remain the same whether it be \$.11 or \$11 per \$100 of payroll. From a point of view of actuarial mathematics, just as much work may be put into the computation of \$.11 premium rates and the purely mathematical problems involved just as important. But after all, it is useless to exaggerate the social importance of a slight fluctuation in the price of insurance, which in most cases constitutes a very small part of the cost or price of any article or service.

I want to state that there are many problems in the business, as well as in the science of insurance, that are of much greater

importance than the mathematical accuracy of the premium or price. And that insofar as the public or society at large is interested in the development of insurance, they are very much more interested in those general problems than in the mathematics of rate computation. It is in those by-products of the insurance business that statisticians more than actuaries, or perhaps it would be more accurate to say statistics rather than actuarial science, can play a very important part. Nor is this a matter of pure speculation. In the related field of life insurance, the influence of at least some insurance companies in the field of life and health preservation has been one of very great importance and that influence has largely been contributed by statisticians, or at least by scientific analysis of life insurance statistics, which from the point of view of rate computation might have appeared as an unproductive expenditure of funds. Even running the danger of facing the charge of improper personal references, I can't help mentioning in this connection the tremendous importance of the work done by the statistical department of the Metropolitan Life Insurance Company, under the leadership of several of our ablest vital and insurance statisticians. The problems casualty insurance is dealing with are perhaps of equal importance. It is perhaps sufficient to mention only one line, that of automobile insurance in its many sub-divisions. The problem of automobile hazards in American life has become a grave and pressing national problem. The actuary may feel satisfied if he meets this problem by elaborating formulas which guarantee insurance companies against unexpected losses and guarantee to the automobile owner a fair and equitable rate. The public, however, may rightfully expect a much greater service from the casualty insurance companies, a service which only the statisticians can render; a thoroughly scientific study of this new hazard of our social life in all its ramifications, with a view towards creating forces which would help society towards overcoming it.

This on a practical or utilitarian side. Equally strong argument, it seems to me, can be made from the point of view of theoretical insurance science, what the Germans so definitely designate as "Versicherungswissenschaft."

After all, it is very much to the credit both of the organizers of this Society and to its entire membership that it has definitely

remained an organization of individual workers and students, rather than an organization of employees of business corporations. So punctilious was the Society in preserving this point of view, that at no time was it allowed to derive any material benefit from any insurance corporation. So well has this matter been settled that one may well afford to view with good natured humor the problem that appeared so threatening eight years ago, when the Society accepted the hospitality of meeting in a business office, a hospitality which was so limited that it did not even include a freelunch and which, nevertheless, called forth some very strenuous protests. I believe this policy was eminently right. That insurance organizations of all types whether private, mutual or State, have derived a tremendous advantage from the organization and work of the Casualty Actuarial Society, does not I believe at this time require any proof. Whether this advantage has expressed itself in higher profits or larger dividends, or lower rates, is immaterial. These advantages have not been paid for, no payment has been exacted. In a true scientific spirit the Society has remained, and I hope always will remain, an organization of individual professional workers and scientific students. The field of inquiry, in which these students do and should work, need not be limited to the one comparatively narrow aspect of price. Insurance science is a legitimate and important aspect of social, as well as of mathematical science. The method of approach in this branch of scientific inquiry will always remain primarily a statistical one, for insurance to a very large extent is the very embodiment of practical applications of the statistical method. May I, therefore, conclude with a plea for the preservation of statistics as such, if not in the name, at least in the spirit of the Casualty Actuarial Society.

RELATION OF THE CASUALTY ACTUARIAL SOCIETY
TO OTHER SCIENTIFIC ORGANIZATIONS AND
TO THE INSURANCE WORLD

BY

JAMES D. CRAIG

The relation of the Casualty Actuarial Society to other scientific organizations, and to the insurance world, presents a very interesting field for discussion and reflection. The Casualty Society, according to its constitution, is organized for the promotion of actuarial and statistical science as applied to the problems of casualty and social insurance, and if the functions here outlined are taken literally, the Casualty Actuarial Society should properly have been organized 1000 years before either the Actuarial Society or the American Institute of Actuaries, instead of following them by a generation or a decade. While we naturally look upon the Actuarial Societies as the founders of scientific study in relation to insurance, it is probably because life insurance was put upon a scientific basis first, and not because life insurance came historically before casualty insurance. Mr. Walford in his prize essay on the History of Life Insurance in the United Kingdom, states that during the Anglo-Saxon period, 827-1013, there existed in London a guild, the primary object of which was the recovering of stolen live stock or slaves, while the early contracts of life insurance were based alike in form and expression upon those adopted in marine insurance. Life insurance went through three periods—the experimental, speculative, and the period of scientific exactitude. In the experimental period the class of life insurance chiefly in use was that of insuring marines, or masters of ships, against death or captivity during the prosecution of their voyage, and insuring merchants against captivity by pirates. If life insurance was then in the experimental period, how much more was casualty insurance in such marine coverage.

The Casualty Society came into being ten years ago, with the scientific period of life insurance well advanced, and was free to avail itself of all the exactitudes already developed and in practice. Things as a rule do not just happen. There is

generally a primary underlying cause not visible to all, not always even visible to the founders, but apparent to the historian, who reflects upon cause and effect, and the Casualty Actuarial Society did not "just happen" ten years ago. Public liability laws were being amended, workmen's compensation laws were being enacted, so that these very fascinating subjects were developing from their experimental period through their transitional period, and into a period of scientific exactness, but no general avenues were open for their development. Up to 1914 little appeared in the TRANSACTIONS of the Actuarial Society relating to casualty insurance. In 1890 and again in 1905 Mr. W. S. Nichols discussed the actuarial elements involved in fire insurance, but from that time until 1908 nothing appeared on casualty lines. In 1908 a paper appeared by Mr. Messenger on Health Insurance. It was not until 1911 that compensation insurance or schedule rating appeared in any of the TRANSACTIONS. During the years 1911-14 no year passed but that Mr. Mowbray or Professor Whitney presented their contributions. They were all in connection with workmen's compensation insurance, except Professor Whitney's paper in 1911 on the Theory of Schedule Rating, particularly with reference to fire insurance. During the years 1908-1914 inclusive, only nine papers had been delivered in the Actuarial Society relating to casualty topics, of which six related to workmen's compensation. Here, then, was a new subject coming to the front quietly, and yet effectively. Those particularly interested were not getting the full discussions of the problems in the Actuarial Society, and had no established means of consulting one with another. The need for concerted action was felt, and in 1914 this Society was organized with 97 charter members. Since that time only two papers have been presented to the Actuarial Society covering workmen's compensation insurance, Mr. Olifier's paper in 1915 and Mr. Woodward's paper in 1923, both concerning the valuation of death benefits under the New York Compensation Law. There was a paper on Social Insurance and several on Accident and Health Insurance, but Workmen's Compensation and Casualty Insurance generally have been left for the Casualty Society. Has the Casualty Society accepted the responsibility? To date it has received 39 papers on Workmen's Compensation Insurance, 9 on Accident and Health, 4 on Automobile Insurance, 6 on

Aircraft, Burglary, etc., 2 on Pension Funds, 8 on Frequency Curves and Statistics, 6 on Administration of Casualty Companies, Allocation of Expenses, Loss Analysis, etc., and one on Unemployment Insurance. Its membership has grown from 97 to 246.

In talking to the Chairman he asked me if I would intrude upon the subject of the gentleman who was to be the next speaker but who unfortunately is not here, and discuss the subject of the responsibility of the members of this Society. Do those figures come home? Do they mean any personal responsibility, particularly to some of the younger members who are making a close study of these subjects? During these ten years have you allowed the charter members to present their studies while you absorb their wisdom or have you buckled down? Have you appreciated the responsibility to the Society and to the company, your own companies, by endeavoring to study and if necessary specialize on certain subjects and present your findings to this Society? It is a duty that is old and it is a duty that will reflect more credit to you and will give you more advantage and more satisfaction and greater learning than you can possibly appreciate. At first it is difficult to attempt a paper, to start a discussion. You may be a little backward, you may feel that others are better qualified to do this. There is nothing to fear in opinions. All papers are treated fairly, honestly and scientifically and as time goes on you will take more interest in later papers submitted on the same subject and you will become a much more valuable member of the Society. You owe it to the Society as well as to yourselves to feel this responsibility.

Apparently a very definite need has been met. Those interested in casualty lines have found a common medium for the discussion of their general problems. The number of papers submitted and discussed shows that these problems have been continuous. Progress has been made, however, and the business is undoubtedly better off today because of the Society. What effect this organization has had upon the business of the companies themselves possibly cannot be expressed in dollars and cents or in ratios. What we do know is that in 1913 there were 54 casualty companies reporting to the Connecticut Department, whereas in 1923 there were 76. The assets of the

54 in 1913 were \$160,000,000; the assets of the 76 at the end of 1923 were \$1,132,000,000. The income has risen from \$129,000,000 to \$502,000,000, and disbursements from \$122,000,000 to \$458,000,000. In compensation insurance alone the net premium had increased from \$14,000,000 to \$118,000,000, while the net losses from claims had increased from nearly \$4,000,000 to \$74,000,000. In 1913 the report showed an income of \$14,000,000, and a net loss of \$3,700,000. This might seem a much more favorable financial return than the 1923 figures, when the income was \$118,000,000 and the claims \$74,000,000, but undoubtedly the latter figures are more within reason.

Have the companies suffered? In 1913 the surplus reported was \$29,500,000 whereas in 1923 it was \$128,000,000. Any business that can earn nearly \$100,000,000 in ten years is certainly not suffering from excessive losses, and any Society that can show such results for the companies of which its members are the technical advisers should feel proud of its record, even though it covers but a span of ten years.

The influence of the Society has been felt in other spheres. The scientific principles enunciated and demonstrated here have been applied wherever casualty principles have been required or permitted. The principles underlying adequacy of exposure, as brought out by one of our ex-presidents, as well as the practices and theory of experience rating have all been applied by life companies and by accident and health companies in some form or other and in the Group policy. In fact, the Group Life business has been brought before this body for its consideration. In addition, the discussions of accident and health insurance, and total and permanent disability benefits, have been followed closely by all interested.

Beyond this, the Society has co-operated with other societies, through the exchange of literature and through joint representation. It was represented by its president at the conference on Social Insurance in Washington in 1916, and assisted the Government through the service of certain members and officers in the formation and carrying on of the War Risk Bureau.

Perhaps in closing it might be well to reiterate a thought previously expressed, that while the Society exists as the result of a distinct purpose, and functions in a field exclusively its own,

the influence of other societies has nevertheless been an important factor. Many of the members of this Society have been trained in other societies and had learned the value of scientific discussion. They have learned that men could honestly differ on many questions, but that this did not prevent cordial co-operation in always seeking the truth. What success has attended the Society is largely due to this influence, until today the most bitter points of controversy can be brought here and discussed in a calm, scientific manner, with all united in a definite conviction to ascertain the real facts in the matter.

May this spirit continue; and with active co-operation on the part of all, with earnest respect for the other man's opinion, and with the renewed determination to ascertain the truth, the whole truth, and nothing but the truth, the future of this Society is assured.

REVIEW OF THE SOCIETY'S FIRST TEN YEARS AND
A GLANCE INTO THE FUTURE

BY

B. D. FLYNN

Ten years have passed since the organization of the Casualty Actuarial Society, originally called the Casualty Actuarial and Statistical Society of America. It is fitting that we should pause at the close of the first decade of our existence and review that which has been accomplished, with particular reference to the purpose for which the Society was organized. As stated in our Constitution, 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.

President Rubinow in his presidential address in February, 1915, stated: "There are so many problems and many of them are so urgent, that frequent meetings will be necessary. It is the intention of the Council to stimulate scientific work along definite lines, by selecting specific topics for the preparation of papers and their discussion at each meeting. At the same time we do not intend to interfere with, but on the contrary shall offer all possible encouragement to, independent efforts at investigation in all possible directions, by holding our PROCEEDINGS open to all valuable contributions on any topic connected with our lines of endeavor. We intend to make our PROCEEDINGS a good deal more than a dry record of events transpiring at our meetings. If our plans find the necessary support among the membership at large, the PROCEEDINGS will develop into one of the most important periodical publications in the domain of insurance science."

Our PROCEEDINGS which give the record of our past actions show what we have accomplished in an educational way through our Society. When the Society was formed, the casualty insurance business and more particularly the liability branch was endeavoring to pass from a condition of haphazard to one

of orderly rate-making procedure. Compensation insurance was in its infancy and there was very little information available upon which to base scientific rates. The underwriters of the individual companies, after reviewing the meagre statistics that were available, based their final decision as to rates on judgment. This was true not only with respect to compensation insurance but even more so in the case of the various forms of public liability insurance and the indemnity lines. Therefore, at the outset, it was natural that the attention of the Society should be concerned chiefly with the problems of placing the rate-making procedure upon a firm statistical basis.

Due to its relative importance, it was to be expected that compensation insurance should first occupy a prominent place in the discussions of the Society. In the first volume of the PROCEEDINGS, for example, there appears a paper on "Scientific Methods of Computing Compensation Rates." The rapid development of compensation insurance had caused us to devote our major attention to this subject. As a result there will be found in the PROCEEDINGS a fairly complete historical record of the progress made in the development of scientific compensation rate-making. The educational value of this historical record cannot be overestimated. Some of the many papers which have been presented on this line of insurance deal with study of claims, analysis of experience, method of computing reserves, and miscellaneous subjects. The papers on Loss Reserves have had an important bearing on legislation affecting this subject which has been passed in many states.

The PROCEEDINGS also contain valuable papers on the scientific study of lines of insurance other than compensation. Extremely valuable papers have been contributed on Accident, Health and Automobile Insurance. In fact there is practically no line of casualty or social insurance that has been neglected. There will be found in the record valuable contributions on the following subjects: "Agricultural Insurance;" "Insurance against Unemployment;" "Burglary Insurance Statistics;" "Credit Insurance;" "Unearned Premium Reserves for Fidelity and Surety Insurance;" "Group Health Insurance;" "Aircraft Insurance;" "Manufacturers' and Contractors' Public Liability Insurance;" "Plate Glass Insurance;" "Property Damage Insurance;" "Rain Insurance;" "Steam Boiler Underwriting."

These papers, describing the practices in the various lines of casualty insurance, form an introduction for their deeper consideration.

Soon after our Society was formed, it became apparent to the various insurance carriers that it would be necessary to have a central organization where statistics could be collected and studied, and scientific methods devised for computing premium rates. These rate-making organizations therefore took over one of the most important functions of our Society. It should be a matter of gratification to us that our members have had a most important part in the rate-making methods devised for the various branches of casualty insurance. As concrete evidence of this, we have the fact that papers have been contributed by members explaining the principles followed in the general rate revisions of compensation insurance. We have also had papers explaining the basis for computing premiums and reserves for Non-Cancellable Accident and Health Insurance. Our members occupy most important positions on actuarial committees studying other lines of casualty insurance, such as Commercial Health, Burglary, and Automobile.

A brief review of our PROCEEDINGS cannot but lead to the conclusion that it is the best publication covering the progress made in scientific rate-making in casualty insurance. This is undoubtedly one of the most important accomplishments of our Society during the first ten years of its existence.

In addition to the study of rate-making problems, there will be found recorded in the PROCEEDINGS important contributions on the subject of accounting and the allocation of expenses for casualty insurance companies. Much of this material has been presented recently in connection with the Casualty Exhibit called for by the New York Insurance Department. This is illustrative of the interest taken by our Society at all times during its ten years of existence in current problems pertaining to casualty insurance. Another illustration of this particular point is shown by the appointment of committees from time to time to deal with various problems confronting the casualty insurance business. The investigations and work done by these committees has been most valuable in determining the final solutions of the problems at hand. These committees have dealt with such problems as Accident and Health Reserves, Military Pensions,

Standardization of Industrial Accident Statistics,—Terms, Definitions and Symbols for Casualty Insurance,—Workmen's Compensation Statistics, and Compensation and Liability Loss Reserves. These committees, functioning under the auspices of our Society, must be recognized as having accomplished something materially worth while in the field of casualty insurance.

The Society, early in its existence, laid out a course of study by which students having the necessary fundamental education might prepare for work in the casualty actuarial profession. Through our examinations we have set up for the student a standard for measuring his attainments. Gradually these standards for admission by examination have been raised, so that now it is considered no easy accomplishment to become a Fellow by this route. By means of the course of study which has been laid out and the standards of examination which have been set, a fine type of man has been drawn to our ranks and it may well be said that the casualty actuarial profession has been placed on a high plane. This in itself must be considered as one of the very definite and highly satisfactory accomplishments of our Society.

In connection with the Society's educational work, there must be mentioned the establishment in New York and Hartford of libraries containing books and periodicals dealing with casualty insurance in general and actuarial, statistical, and accounting methods pertaining thereto. The establishment of these libraries was originally contemplated when the Society was organized and it is gratifying indeed to know that we have carried to fulfillment the contemplated program.

Not the least accomplishment of the Society has been the opportunity presented to members to get together in personal intercourse twice a year, to discuss current problems, to compare methods of work, to ask and to give advice; this has been of inestimable value to the men in our profession. This has been particularly true in the case of the younger members, to whom the meetings have been a source of enthusiasm for their work and an incentive to greater personal effort.

When the Society was organized, the casualty actuary was generally looked upon with suspicion by underwriters and others connected with the general management of the business. This was due to the fact that the actuaries had very little knowledge

of underwriting principles and the underwriters had not been educated to the value of the statistical methods used by the actuary. The associations of the actuary and the underwriter during the ten years of our existence have seemed to make the relation between them one of cooperation and accomplishment. The fact that the relations between actuary and underwriter have become cooperative has had a tendency to make the young men in our profession anxious to learn as much as possible about the other branches of the business. On the other hand, the young underwriters have seen the advantage of acquiring at least an elementary knowledge of casualty actuarial science. In addition, mathematically trained engineers have found it advantageous to acquaint themselves with actuarial principles. As a result of these relations, company executives are beginning to realize more and more the advantage of having actuarial guidance in the many problems which confront them from day to day. This is evidenced by the fact that in recent years there has been an increasing tendency on the part of executives to place in important positions men who have had sound actuarial and statistical training and have learned to present these propositions in a practical rather than a theoretical manner.

The fact that the casualty actuarial profession has been raised to a high plane and that the insurance world in general has come to look on it in a much more receptive and important light, can truly be said to be due to the dignified and determined efforts which our members have made.

In looking back, therefore, over the ten years of our existence as a Society, we can truthfully say to ourselves that the object for which our Society was organized has continually been before us. An active interest has been taken by the members of the Casualty Actuarial Society in practically every problem confronting the casualty insurance field during the past decade. The PROCEEDINGS of the Society furnish a record of actuarial and statistical endeavor in the casualty insurance field whose value cannot be overestimated. The semi-annual meetings of the members have in their social features been most beneficial in developing comradeship and mutual helpfulness among members of the profession. A great deal has been accomplished by the Society along educational lines, not only with respect to students seeking admission but also among insurance underwriters and

technicians as well. Furthermore, the work accomplished under the auspices of the Society and by its individual members has succeeded in placing the Society in a firm and respected position in the field of casualty insurance. Certainly the record of the first ten years fully justifies the organization and existence of the Casualty Actuarial Society.

To attempt to play the role of prophet is generally a dangerous and thankless task. Still, it is not difficult for one who has watched the progress of the Society during the past ten years to forecast development along certain lines in the second decade.

There will undoubtedly be closer and more detailed study of some of the social insurance lines. For example, unemployment insurance, workmen's sickness insurance, and workmen's pensions. It is probable that changes in industrial conditions within the next five or eight years will force to the front problems associated with these lines of insurance. There is a large amount of work in providing workable insurance plans with proper rates, reserves and so on before members of the Society, if we are to take our proper place in working out the problems associated with these lines. It appears to me also that the Society's members will do important work in the further development of rating methods, rate-making, and experience work in many of the indemnity lines and other casualty lines, such as accident and sickness, which have not yet appeared extensively in the PROCEEDINGS of the Society.

There should be a tendency toward further studies in insurance accounting, bearing upon the problems of expense apportionment and statement work. In this connection the recent plans announced by the Educational Committee of the Society which state that books are in preparation by members of the Society upon Insurance Accounting, Insurance Law, and Insurance Administration and Statistics are encouraging. These textbooks will be helpful to students and to the insurance world generally. Let us hope that this is only the start and that the Society will in the future act more and more as the sponsor for educational texts such as these. In this manner, not only will the insurance world be benefitted but also credit will accrue to the Society itself.

It seems safe to say that the casualty actuary or statistician will play an even more important part in the sound development

of insurance in the future than in the past. There is a constant tendency for the most farsighted insurance executive to require more and more fundamental scientific information as a basis for a business decision. There is also the pressure of the insurance public, insurance supervisory officials, and insurance managers toward more scientific rates and methods. I can see a steady and strong trend toward the greater use of the casualty actuary and statistician's knowledge and workmanship in conducting the insurance business. Certain lines of insurance, such as life, have grown to depend upon scientific direction to a great extent. Some lines of casualty insurance, such as compensation, have gone far in this direction, but there is still a large field for development in other parts of the casualty and social insurance field.

How will this be accomplished?—may be asked. One important way it seems to me is in the work of non-partisan committees of the Society which will investigate a problem and produce the best solution possible, based upon scientific principles. It is hoped that many investigations bearing upon casualty or social insurance now handled in various other organizations can be worked out under the patronage, I might say, of the Society and by its members in committee. Another way is in the presentation and full discussion of papers which will further scientific development. This seems a trite statement but it is in the thoroughness with which a program of this kind is worked out in future years that the development of the profession will be assured. I have a feeling that we have members with the ability and enthusiasm to progress these studies even farther than the point accomplished in the past decade. There is such a broad and important field for this development that with the momentum gained during the first ten years I am certain we will go on to much greater accomplishments in the next decade.

BURGLARY, THEFT AND ROBBERY INSURANCE

BY

G. F. MICHELbacher AND L. H. CARR*

INTRODUCTION

Each form of insurance has its background of occurrences which result in sudden and unforeseen financial shocks to individuals or to groups of individuals, and, therefore, create contingencies against which protection is desirable. Certain crimes are the background for burglary, theft and robbery insurance and because these crimes are spectacular, and have always had publicity value, it is not difficult to ascertain their nature and extent, although exact statistical analyses are impossible for reasons which will be stated.

There is considerable divergence in the several states between the legal definitions of the terms which describe this coverage, so that it is difficult to combine complete data from different jurisdictions on a uniform basis. In fact, this never has been attempted, so that a comprehensive record of burglaries, thefts and robberies for the United States is not available. But statistics from different sections of the country, from trade associations, and from the experience of casualty insurance companies, make possible the presentation of an incomplete view of the situation which will at least indicate its seriousness.

First, some illustrative data from a few important cities. In the city of New York† there were 5,390 burglaries and 1,086 robberies in 1922 and 4,933 burglaries and 1,077 robberies in 1923. In Kansas City, Missouri,‡ there were 1,693 burglaries and 710 robberies in 1922 and 1510 burglaries and 957 robberies in 1923. In Chicago, Illinois,§ there were 4,301 burglaries and

*Manager, Burglary Department, National Bureau of Casualty and Surety Underwriters.

†Annual Reports of the Police Department—City of New York—for the years 1922-1923.

‡Estimated upon the basis of nine months data for January-September published by the Law Enforcement Association of Kansas City. The actual figures for nine months were: 1922—1274 Burglaries and 568 Robberies, 1923—1208 Burglaries and 766 Robberies.

§Bulletin of the Chicago Crime Commission (Organized by the Chicago Association of Commerce). Number 31—Chicago—March 1, 1924.

2,007 robberies in 1922 and 3,019 burglaries and 1,402 robberies in 1923.

Second, some more picturesque information from two important trade associations. Banks are particularly exposed to burglaries and robberies, and it has been discovered recently that the number of robberies is increasing due, probably, to a considerable extent to the widespread use of the automobile, and to the development of good roads which make it possible for criminals to penetrate into even the most remote sections of the country, and to travel at high speed. It is true, also, that criminals have discovered that it is easier to perpetrate a hold-up in a bank, where there are few employees, than it is to blow open a safe or vault. Robbers operating in gangs of six to fifteen, can overpower or intimidate from two to three times their number without difficulty, whereas entrance into a safe or vault requires far more effort, and, in addition, the use of considerable equipment and tools which must be transported to the scene of the crime. This trend is discussed in the recent report of the Protective Committee of the American Bankers Association* as follows:

The laborious task of bank burglary is apparently yielding to the more daring and productive art of robbery, known as "hold-up"—the 1921 high mark of 240 burglaries against members dropping to 98 in the past year (1923). Over the same period, "hold-up" robberies of members increased from 97 in 1921 to 165 in 1923. There is food for serious thought and action in these figures, when we recall that ten years ago insurance companies and banks treated "hold-up" risks as a side issue in their Burglary and Robbery coverage.

The data presented in this report refer only to members of the American Bankers Association, and therefore fall far short of representing the situation in its entirety, as another quotation from the same source will disclose:

. . . . over a period of thirty years of Protective service by this Association, 1,632 burglaries were perpetrated against its members with a total loss amounting to \$1,212,000. In the same thirty years, non-member banks, which are much smaller in number and in possible loot, suffered more than 2,374 burglaries and sustained a loss in excess of \$4,170,000. This shows an excess ratio of 45%

*Report of the Protective Committee to the Executive Council of the American Bankers Association. Fiftieth Annual Convention, September 30, 1924. *Economic World*, new series, Volume XXVIII, No. 15, October 11, 1924—pp. 528-9.

against the non-member banks in the number of burglaries and a loss figure 240% greater.

An equally attractive field for criminals of all types is the jewelry trade. The Executive Committee of the Jewelers' Security Alliance,* the membership of which on January 1, 1924 comprised 6,476 firms, reported the following record of burglaries, thefts and robberies among members of the Alliance for 1923:

358 members suffered losses approximating \$322,000, classified as follows:

9 Safe Burglaries.....	\$35,700
62 Store Burglaries.....	52,000
137 Window Smashings.....	56,300
127 Sneak Thefts.....	133,600
23 Hold-ups and Assaults.....	43,700
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358	TOTAL.....\$321,300

In this case also, the record for the association is not entirely representative. The Executive Committee presents the following estimates covering the entire trade based upon information from trade papers and other sources:

860 crimes were committed in calendar year 1923 with losses approximating \$2,000,000, classified as follows:

48 Safe Burglaries.....	\$450,000
207 Store Burglaries.....	175,500
293 Window Smashings.....	300,000
195 Sneak Thefts.....	250,000
117 Hold-ups and Assaults.....	800,000
<hr/>	
860	TOTAL.....\$1,975,500

Third, a compilation taken from the experience of insurance companies. The following is an exhibit of the countrywide experience of twenty-five members of the Burglary Department of the National Bureau of Casualty and Surety Underwriters for the two policy years 1921 and 1922. It is not known what proportion of the total crimes of this class is represented by these data, but it may be assumed, taking the situation in its entirety, that not more than 5% of the possible risks which should have insurance against this hazard are actually insured.

*Bulletin No. 35. The Jewelers' Security Alliance of the United States—January 1, 1924. Forty-first annual report of Executive Committee to the Members of the Association.

EXPERIENCE OF TWENTY-FIVE STOCK CASUALTY COMPANIES*

Kind of Crime	Number			Amount of Loss		
	Policy Year 1921	Policy Year 1922	Total	Policy Year 1921	Policy Year 1922	Total
Burglaries and Thefts from Homes Robberies (outside of homes) of Personal Property.....	14,816	12,936	27,752	\$2,792,032	\$2,584,561	\$5,376,593
Bank Burglaries.....	391	265	656	141,174	142,447	283,621
Bank Robberies.....	569	351	920	183,947	223,767	407,714
Mercantile Safe Burglaries.....	158	95	253	184,788	124,426	309,214
Messenger Robberies.....	1,107	1,131	2,238	303,725	362,015	665,740
Paymaster Robberies.....	1,023	611	1,634	357,049	261,212	618,261
Office & Store Robberies.....	94	67	161	210,551	122,837	333,388
Burglary of Merchandise from Mercantile Establishments.....	1,247	794	2,041	317,688	290,111	607,799
Grand Totals.....	2,008	1,410	3,418	1,130,696	907,969	2,038,665
Grand Totals.....	21,413	17,660	39,073	\$5,621,650	\$5,019,345	\$10,640,995

*This table will be misleading unless it is studied in connection with the table on page 44 giving the distribution of the premium income of the stock companies whose experience is presented. It will be noted from the latter table, for example, that approximately 50% of the premiums are obtained from Residence policies, which explains why the largest number of losses is found in connection with risks of this class. The present table is valuable only as a rough indication of the number of crimes and the amount of losses.

It is true that these figures represent conditions at their worst. They are taken from congested centers where property values are concentrated, and burglaries and robberies are, therefore, of most frequent occurrence; they represent those trades which are particularly the targets of criminals; and they are compiled from the records of insurance companies, and consequently may be said to typify the experience of those who recognize the fact that they are peculiarly exposed to hazards against which protection is necessary. They do, nevertheless, point to an alarming situation for, if the complete crime record for the country could be compiled it would aggregate a total of considerable magnitude both in number of crimes and in the property loss involved. The United States has worse conditions than European countries in this field as it does in others, such, for example, as the loss of lives and property by fire, and the occurrence of industrial injuries. Every person, firm, corporation or association in this country possessing valuable property (such as money, securities, precious stones or jewelry) that has a market value and is readily negotiable, is subject to attack by burglars, thieves and robbers. The greater the value of this property, the greater is the possibility of loss for, like others, the criminal is human in his desire to obtain the maximum return for his efforts.

DEFINITIONS OF TERMS

This is an important subject both because of the popular misuse of these terms and because the policy definitions describing the coverage which is granted do not conform with the legal definitions of these terms at common law or as they are defined in the state statutes.

The definitions of robbery and burglary as used in this form of insurance have been standardized in order that coverage might be uniform from state to state. The diversity of statutory or common law definitions of these terms in the several states made this necessary, the crimes varying in description and in degree, and legal penalties ranging from moderate fines and prison sentences to death. The original plan of following the law was impracticable because losses due to certain crimes were covered in one state but excluded in another, and other similar inconsistencies were injected into the situation.

The definitions used in insurance policies raised the interesting legal question whether it was permissible to establish certain definitions as matters of contract, and to require that they be observed instead of the statutory or common law definitions of the state in which the crime might be committed. This question was decided favorably to the companies in 1912 by the New York Court of Appeals in the case of *Rosenthal, et. al. v. The American Bonding Company**, and the principle has been generally recognized by other courts since that time. The New York Court said that

if the parties to a contract adopt a provision which contravenes no principle of public policy and contains no element of ambiguity, the courts have no right to relieve one of them from disadvantageous terms, which he has actually made, by a proposition of interpretation. It may be conceded that if a policy of insurance is of doubtful tenor, the court should employ that interpretation which is the most exacting against the insurer, who has prepared the contract, but if the contract is not of uncertain meaning, as has often been said, the court may not make a new one under the guise of construction.

As a result of this and similar decisions, practically all of the companies are now using in their policies standard definitions of certain terms.

Burglary. The development of the present standard definition of the term "burglary" has been a process of experiment. As rapidly as courts have found flaws in the definition, they have been removed, until today it is practically in finished form, and as a result of test has been found to cover the risk as the companies intend to cover it.

There is a slight difference between the definition in policies covering residences and in those covering bank vaults and mercantile establishments. In the residence policy a burglary is defined as the taking of property of the assured by a person "who shall have made felonious entry into the premises by actual force or violence of which there shall be visible marks made upon the premises at the place of such entry by tools or explosives." In other cases, because of the methods employed by modern burglars, the definition is essentially the same, but the visible marks establishing the fact that a crime has been committed may be made by "electricity or chemicals" as well as by "tools or ex-

*100 N. E. 716.

plosives." The use of a "jimmy" to force open a window in a private residence, even though it may leave but the slightest scratch as evidence, is sufficient to establish the fact of a felonious entry, if property has been stolen. In the case of a bank vault or a mercantile safe, the mark evidencing the crime may be made by an oxyacetylene or an electric torch. In either case, there must be conclusive evidence of forcible entry from the outside. The intent is to bar claims for property which has been purposely misplaced, or which has been stolen by someone having unrestricted access to the property, or by a sneak thief.

Robbery. "Robbery" (sometimes referred to as "hold-up") is a term which is frequently used incorrectly. A person may say that he has been robbed, when, in fact, he has been the victim of a burglary or a theft. The legal definitions vary, and again the companies have established their own definitions in the interest of uniformity, and in order that coverage may be similar in all states.

The definition of the term in the Standard Paymaster and Messenger Robbery policy is as follows:

Robbery, within the meaning of this policy, is limited to a felonious and forcible taking of property: (a) by violence inflicted upon the custodian or custodians in the actual care of the property at the time; or (b) by putting such custodian or custodians in fear of violence, or (c) by an overt felonious act committed in the presence of such custodian or custodians and of which they were actually cognizant at the time; or (d) from the person or direct care or custody of a custodian, who, while conveying property insured under this policy, has been killed or rendered unconscious by injuries inflicted maliciously or sustained accidentally.

This definition indicates why robbery is considered a more serious offense than burglary. The object in both cases is similar, the unlawful taking of the property of another, but in one case nothing beyond the property of the owner may be injured, while in the other, one or more persons are placed in jeopardy. To constitute robbery the property must be taken against the will of the person or persons in whose possession it is, and force or violence or fear of injury must be employed in the process.

In the Personal Robbery policy (known as "hold-up" coverage to differentiate it from the other robbery forms) coverage is limited to the felonious and forcible taking of property from the person of any of the individuals whose property is insured,

. . . accompanied by bodily injury to the person from whom the property is taken or by putting such person in fear of bodily injury.

These definitions, it will be noted, do not cover "pocket-picking" except in the case of messengers or paymasters and then only in case the custodian is killed or incapacitated as a result of assault or accident.

Theft or Larceny. These terms to all practical intents and purposes are synonymous. They are used only in connection with Residence policies, and in this case they are not specifically defined, because where they appear the coverage is intended to embrace every form of stealing, and the terms are used primarily to emphasize this point, having been handed down through many years of underwriting. The terms are intended particularly to apply to cases where dishonest servants and others, such as delivery men and mechanics having access to the property of the assured, misappropriate such property to their own uses without the consent of the owner.

Theft is seldom if ever defined in the statutes. It usually is included under the broader term "larceny," which covers a multitude of sins. For example, in New York State* a person is guilty of larceny

who with the intent to deprive or defraud the true owner of his property, or of the use and benefit thereof, or to appropriate the same to the use of the taker, or of any other person:

(1) Takes from the possession of the true owner, or of any other person; or obtains such possession by color or aid of fraudulent or false representation or pretense, or of any false token or writing; or secretes, withholds, or appropriates to his own use, or that of any person other than the true owner, any money, personal property, thing in action, evidence of debt or contract, or article of value of any kind; or

(2) Having in his possession, custody, or control, as a bailee, servant, attorney, agent, clerk, trustee, or officer of any person, association or corporation, or as a public officer, or as a person authorized by agreement, or by competent authority, to hold or take possession, custody, or control, any money, property, evidence of debt or contract, article of value of any nature, or thing in action or possession, appropriates the same to his own use, or that of any other person other than the true owner or person entitled to the benefit thereof . . .

*Section 1290 Penal Law.

There are three degrees of larceny; two degrees of what is known as "grand larceny" and one degree of what is known as "petit larceny," the distinction between "grand" and "petit" larceny depending upon the value of the property stolen.

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Co-insurance. It is a popular misconception that co-insurance is designed merely to enable the insurance companies to scale down losses when they occur. Just the contrary is true because the assured collects his loss in full up to the face value of his policy if he has complied with the co-insurance clause. The real object of co-insurance is to require adequate insurance of property and thus to prevent an inequitable distribution of losses and premiums. Take the following case, for example: A is a wealthy banker in whose residence there are sumptuous furnishings, much silverware and jewelry, and extensive wardrobes of costly wearing apparel. The value of the property subject to burglary or theft is \$100,000. B is a man in more moderate circumstances and his possessions are in keeping with his station in life. The value of his property subject to burglary or theft is \$1,000. Assume that the amount of insurance which A and B may take is not defined by any rules of the insurance companies. Under these circumstances each may decide to take coverage of \$1,000. In which case would the hazard be greater? It is certain that A's risk is much more attractive to criminals than B's; also that a loss of \$1,000 is much more likely in A's case than in B's. The underwriter would have much more at stake on A's \$1,000 of coverage; for in this case a partial loss of 1/100 part of the stealable property would mean a total loss under the policy, whereas in B's case all of the property subject to burglary or theft would have to be taken to produce a total loss. There can be no question that A should be charged more for his coverage than B; for the insurance rate must depend upon the ratio of insurance to value, increasing as this ratio becomes smaller.

Co-insurance is a method designed to meet this situation. By forcing A to insure up to a certain percentage of its value, that part of his property which is likely to be stolen, co-insurance has the effect of requiring A to pay a larger premium for his coverage, thus recognizing the greater concentration of hazard which his risk presents.

In practice, co-insurance is applied to burglary, theft and larceny coverages with certain limitations because it is recognized that as a general rule, all the property of the assured cannot be stolen at one time, and also that to make an inventory of everything in the house from cellar to attic is almost an impossible task. These limitations will be explained later in connection with the discussion of Residence and Mercantile Burglary Insurance. Where the principle is applied without limitations it is provided in the policy "that the company shall not be liable for a greater proportion of any loss of or damage to property . . . than the amount of insurance . . . bears to —% of the actual cash value of all such property at the time of the loss or damage" For example, assume \$5,000 of insurable property, an 80% co-insurance clause and actual insurance coverage of \$3,000. In this case the insurance required, if partial losses are to be fully paid, is 80% of \$5,000, or \$4,000. The actual insurance carried is \$3,000, or only three-fourths of this amount. 1. In case of a loss of \$1,000, only three-fourths of this would be paid, or \$750. 2. If the loss were \$3,000, the company would pay \$2,250. If the loss were \$4,000 or greater, the company would pay the full amount of its policy, or \$3,000. In the first case the assured would lose \$250 and in the second, \$750. In either case the loss would be paid in full if \$4,000 of insurance were carried.

The use of co-insurance is legitimate and equitable, as the following statement of a New York Legislative investigating body* will show:

The general conclusions we reach with regard to the co-insurance clause are these: that the principle upon which it is founded, namely, that rates should be based upon the percentage of insurance carried, is not only sound but is absolutely requisite if the equities of the insured are to be preserved; second, that the co-insurance clause rightly recognizes that as a practical matter the responsibility for maintaining a given percentage of insurance must rest with the assured; third, that the operation of the agreement is automatic and fair.

*Report of the Joint Committee of the Senate and Assembly of the State of New York, appointed to investigate corrupt practices in connection with legislation and the affairs of insurance companies other than those doing life insurance business. New York Assembly Documents, 134th Session, 1911, Volume 20, No. 30, Part I, pp. 89-90.

The objections that can be urged to the co-insurance clause are not on theoretical but on practical grounds and are entirely due to the fact that it is in use where it is not understood. It is perfectly true that the co-insurance clause is a dangerous thing for a person who does not keep close watch of his values—not dangerous in the sense that the assured will not get what he ought to get, but in the sense that he will not get what he thinks he is going to get. But, should the government undertake to shield those who enter into a contract which they do not understand if this must be done at the expense of the real equities of the mass of the assured?

CLASSES OF INSURANCE.

Burglary, theft and robbery insurance is designed to meet many conditions and, for convenience, has been classified as follows:

(1) *Residence Insurance*, which covers loss of and damage to personal property within residences by (a) burglary and (b) larceny or theft.

(2) *Personal Hold-up Insurance*, which covers loss of personal property by robbery.

(3) *Bank Burglary Insurance*, which covers loss of and damage to money and securities in safes or vaults by burglary.

(4) *Bank Robbery Insurance*, which covers loss of and damage to money and securities within the premises of the bank by robbery.

(5) *Safe Deposit Box Insurance*, which covers loss of and damage to securities, silverware and jewelry in safe deposit boxes by (a) burglary and (b) robbery.

(6) *Mercantile Open Stock Insurance*, which covers loss of and damage to stocks of merchandise within mercantile and manufacturing establishments by burglary when the premises are not open for business.

(7) *Mercantile Safe Insurance*, which covers loss of and damage to merchandise, money and securities in safes within mercantile and manufacturing establishments by burglary.

(8) *Paymaster or Messenger Robbery Insurance*, which covers loss of and damage to money, securities and merchandise in the custody of messengers, paymasters, collectors and salesmen by robbery. The coverage in the case of paymaster robbery insurance follow the custodian in the performance of his duties and, therefore, applies both within and without the assured's premises;

in the case of other custodians the coverage applies only outside the assured's premises.

(9) *Interior Office and Store Robbery Insurance*, which covers loss of and damage to money, securities and merchandise within mercantile and manufacturing establishments by robbery.

The relative importance of these classes of insurance, measured in terms of premium income, may be gauged from the following exhibit:

DISTRIBUTION OF PREMIUM INCOME OF \$24,083,661 OF 25 MEMBERS OF THE BURGLARY DEPARTMENT OF THE NATIONAL BUREAU OF CASUALTY AND SURETY UNDERWRITERS BY LINES OF BURGLARY INSURANCE—POLICY YEARS 1921 AND 1922

Class of Insurance	Percent of Total Premiums
Residence Insurance (including Personal Hold-up Insurance)	50%
Bank Burglary and Robbery Insurance (including Safe-Deposit Box Insurance)	14%
Mercantile Open Stock Insurance	12%
Mercantile Safe Insurance	8%
Robbery Insurance (including Paymaster or Messenger, and Interior or Office and Store Robbery Insurance).....	16%
TOTAL	100%

Certain forms of burglary, theft and robbery coverage are not considered in this paper, because they do not fall within the accepted scope of this branch of insurance. In addition to the forms here discussed somewhat similar coverage is included in blanket bonds issued to banks, in automobile theft insurance, in marine insurance (theft and pilferage coverage), and in the so-called "Tourist Floater" and "All-Risk" policies.

HISTORICAL DEVELOPMENT

Burglary, theft and robbery insurance originated in England and it is in that country that the earlier development of the insurance must be traced. In this process the student will find a record of great value in a book entitled "Outlines of Burglary Insurance" by F. D. McMillan* which not only presents an

*Charles and Edwin Layton, 56 Farringdon Street, E. C. London.

historical outline but also describes in some detail the actual methods employed in the present conduct of the business in England.

Mr. McMillan attributes the responsibility for the first plan of burglary insurance of which there is record to Mr. William Weller, of London, who proposed the establishment of "The General Insurance Office" in 1787 with the idea of providing means for insuring against "Loss of Property by Burglaries, Highway and Footpad Robberies, and Public and Private Thefts." His application for a Royal Charter and for the exclusive rights under the "invention" for a period of fourteen years, were denied by the Attorney-General because of a suspicion that such a company, if organized, would find itself unable to cope with the moral hazard, and that it would tend to make insured persons lax "in preventing, resisting, detecting, and apprehending thieves." This was not the only plan devised by Mr. Weller, because upon failure to secure a Royal Charter he attempted to organize a company by another process, only to meet with failure again. The time was not ripe for the successful organization of a carrier in this line of insurance.

There were other attempts to organize companies in the century which followed, but these were apparently unsuccessful, for while several companies were registered during this period, it is not known that any company actually commenced to transact business. It is not likely that there was any considerable number of policies issued until 1889, when the Mercantile Accident and Guarantee Insurance Company of Glasgow, Scotland, undertook the transaction of modern burglary insurance. The idea upon which this action was taken originated with a Scottish ex-police constable named Allan who approached several companies before he came to the Mercantile Accident and Guarantee Insurance Company, where he succeeded in interesting one of the officers and later the Board of Directors. The first policy was issued on June 1, 1889, and at the end of the first year 1,045 policies had been issued at aggregate premiums of £1,090. The business was successful, as the losses for this period amounted to only £213. With this start other companies began to interest themselves in the line, and several entered the field in 1890. The business was then established, and has continued to develop ever since.

In these earlier plans Residence burglary only was covered in

an amount to be determined at the option of the assured, subject to a minimum limit of £100 "or one-third of the total value of the contents of the house." The rate was 5s per £100 for a policy to cover "theft of articles following forcible entry into the premises by day or night." In addition, if the assured wished to do so, he might also cover property damage caused by the burglary. The rate for this was quoted separately at 9d per £100. Later, business establishments were written. These were originally rated on the same basis as residences, but it was soon discovered that differences in hazard demanded recognition, and two classes of risks were established with different rates. Class I, embracing such risks as bakers, butchers and confectioners, was rated the same as residences. Class 2 included such risks as bootshops, silk merchants, tailors and laundries. For these 50% was added to the residence rates for burglary insurance, and the 9d rate for damage to the premises was applied without modification. Complete coverage for mercantile risks in Class 2 was therefore quoted at a rate of 8s 3d per £100 of coverage.

The first known attempt to write burglary insurance in this country was made as early as 1885 by a company known as "The American Protective Mutual Insurance Company Against Burglary." This company was organized to write mercantile open stock coverage against loss by burglary restricted to forcible entry. It transacted a limited volume of local business at Reading, Pennsylvania. A rate of \$5.00 per thousand of coverage was charged regardless of the class of merchandise covered.

In 1892 the Fidelity and Casualty Company of New York undertook to insure banks, bankers and other users of safes against the loss of money, securities and other valuables from their safes through attacks by burglars, and, for a number of years, had the field practically to itself. Gradually other companies entered the field until, in 1900, the business had grown from a premium volume of \$48,360 written by one company in 1894 to a premium volume of approximately \$450,000 for the five companies then transacting this form of insurance. Other companies became interested about this time, and the business was extended gradually to cover other hazards such as theft, larceny and robbery.

The following exhibit will indicate the rapid growth of the business since 1900. Today it is no longer a so-called "side line,"

even though the field has not been touched in the sense that all persons requiring this protection have purchased insurance:

Year	Number of Companies (approximate)	Aggregate Premium Income (approximate)
1900	5	\$450,000
1910	30	2,781,000
1923	33	24,246,000

Having completed this general review of the subject, each individual branch of the business will now be taken up for intensive consideration.

RESIDENCE BURGLARY, THEFT AND LARCENY INSURANCE

Attention has been directed to the fact that policies of this class produce approximately 50% of the entire burglary, theft and robbery insurance premiums of the insurance companies. It is likely that this accounts for the development of varied forms of coverage in this field, for it is usual to find the greatest specialization where there is a concentration of business. It is only recently that sufficient experience has accumulated to guide the companies in underwriting this particular class of risks. Previously each company had its idea of the way in which the business should be written, and consequently there was little uniformity. The experimental stage has not yet run its course, as there are still many coverages available, some of which will probably be discarded, a few coverages which have met the test of practicability being retained for permanent use.

Residence policies may cover either loss by burglary alone or loss by burglary, theft and larceny. But the variations in coverage extend further, and involve the particular kinds of property which the assured may possess, and also various methods of protecting this property. There are four variations of this character for each type of coverage so that there are eight standard forms of coverage available to those who reside in residences. Just what these eight coverages involve and how they are applied will be discussed after policy provisions common to all are considered.

RESIDENCE POLICY PROVISIONS

Insuring Clauses. Two forms of indemnity are offered: First, indemnity against loss of property by burglary or by burglary, theft, or larceny as the case may be, and second, indemnity for

damage (except by fire) to property and premises caused by burglary (or by burglary, theft or larceny) or attempt thereat. The latter clause is intended to cover damage to windows, locks, furnishings and fixtures which may result from the burglary or from an attempt to commit a burglary. Fire damage is excluded to avoid conflict with fire insurance policies. Attempt at burglary is included because burglars are often frightened away before they have an opportunity to steal anything, but after considerable damage has been done to the premises.

The burglary or theft may be "committed by a guest or by any domestic servant or other employee of the assured or by any person whose property is not covered" by the policy. The latter part of this provision excludes the taking of property by the assured, a permanent member of his household who does not pay board or rent, or a relative who permanently resides with him. This would exclude, for example, loss by theft committed by the black sheep of the family. It would also exclude a case such as the following: An assured under a theft policy made claim on account of some of his wife's jewelry, which, after his wife's death, a brother-in-law residing at the time with the assured, carried off, claiming ownership.* In the case of burglary, theft and larceny policies, it is only necessary to prove that the insured property has been stolen. In the case of policies limited to burglary it must be demonstrated that the person committing the crime "made felonious entry into the premises by actual force or violence of which there shall be visible marks made upon the premises at the place of such entry, by tools or explosives."

Agreements, Conditions or Provisions. The insurance applies to property belonging to the assured or to any permanent member of his household who does not pay board or rent, or to a relative of the assured permanently residing with him whether or not such relative pays board or rent. It does not cover property of guests or of domestic servants and other employees, unless such property is specifically insured, and additional premiums paid. Neither does it cover "articles carried or held as samples, or for sale, or for delivery after sale," on the theory that such property is not personal property, and may represent an unusual hazard,

*Garrison, F. S., "Burglary, Theft and Robbery Insurance" Lectures in Casualty Insurance. Delivered before Evening Classes in Insurance of the Insurance Library Association of Boston, in 1922 p. 134.

as for example, valuable jewelry taken home by a jeweler to sell or to deliver to a customer.

A further exclusion which seems to have little practical significance but which has been handed down from the earlier days of underwriting, is loss or damage "caused or contributed to by invasion, insurrection, or war." There is no case on record where this exclusion was applicable, but it remains in the policy probably because some underwriters fear the possibility of a catastrophic loss from this source.

"Premises" are defined according to circumstances. The term applies specifically to the assured's dwelling. If this is a private house it covers the entire building, but excludes porches, garages, stables, and outbuildings although property in these places may be covered upon payment of an additional premium. If the assured lives in an apartment house, or otherwise occupies only a portion of a building the premises are limited to that part of the building actually and exclusively occupied by him. Thus, in the case of a dweller in an apartment house, the policy does not cover property in a storeroom in the basement, beyond a value of \$50, although additional coverage may be had if desired upon payment of a specified premium. These definitions are important to the company because if they were not written into the policy there would be no means of controlling liability. For example, a purse containing jewelry may be left in an automobile in the garage or in the hallway of an apartment house, thus creating an extraordinary hazard which the company should not be called upon to assume at the normal rate of premium.

The premises are considered to be "occupied" when the assured or any member of his household is actually inhabiting them, or so long as a servant or caretaker is in charge and remains in the premises every night. Four months "unoccupancy" is permissible without interfering with coverage, but a longer term of unoccupancy may be arranged upon payment of an additional premium. The hazard is undoubtedly increased during periods of unoccupancy, and it is only reasonable that every assured should have the same privileges, and that the individual assured should pay for the added hazard in case he desires an extension of these privileges. Coverage may also be continued under certain conditions where the assured rents his home to another.

An important provision is that requiring the assured to give immediate telegraphic notice of loss to the company and also to the local peace authorities. Prompt notice is essential in this business, first, because the moral hazard is high, and the company must have an opportunity for an immediate investigation to prevent fraud; and second, because the possibility of recovery of stolen property is extremely remote unless steps are taken without undue delay. Following the telegraphic notice of loss a more formal claim is required of the assured. This must contain "a complete inventory of all of the property stolen or damaged, stating the original cost, the actual cash value of each article at the time of the loss, and the amount of loss thereon." It must also contain other items of information, such as the following: (1) description of the damage done to property, if such damage is the basis of claim, (2) definition of the interest of the assured in the stolen property, and (3) reasonable evidence of the commission of the crime to which the loss is attributed.

The company has several options after it verifies the fact that it is liable for a loss. It may pay the actual cash value of the stolen or damaged property, it may replace the property, or, in case of damage, it may repair the property. The payment of a loss reduces the limit of the company's liability under the policy by the amount paid, but does not terminate the coverage unless the liability of the company is entirely exhausted by the claim.

There are provisions requiring the assured to cooperate with the company in the adjustment of losses, in the prosecution of criminals, and in the inspection of his premises, others dealing with suspension and cancelation of the policy, providing for the possibility of concurrent insurance and the consequent sharing of losses by several companies, and for subrogation.

Declarations. The declarations made by the assured are essential because they contain information upon the basis of which the company accepts the risk. They are so vital that deliberate misrepresentation of any of them by the assured vitiates the coverage. They include:

1. *Name, occupation and business address of assured.* This information is required primarily for the identification of the assured. It must be accurate for otherwise the company has no means of checking up the assured by investigation to determine his past record. He may be a bootlegger or a criminal, or his

experience (which can be obtained from other companies), may disclose other facts of value to the underwriter who must decide whether to assume or to reject the risk.

2. *Location of premises.* The exact location of the risk must be known, because it is often necessary to inspect it to determine its physical characteristics. Not only is the location an element in determining the premium to be charged but there are certain sections of cities from which the cautious underwriter will not accept business.

3. *Portion of building occupied by assured.* It is essential to determine accurately just what part of the building is occupied by the assured, so that losses sustained outside of these premises may be rejected, as well as for the purposes noted under 2 above.

4. *Are premises occupied for private residence purposes only?* This item is designed to cover cases where the premises are used by dentists, physicians, dressmakers and others who are required to pay premiums in excess of that for ordinary residence coverage.

5. *Has the assured sustained any loss or damage or received indemnity for any loss or damage by burglary, theft or robbery within the last five years?* The answer to this question assists the company in combatting the moral hazard. The fraudulent assured may seek to secure insurance under an assumed name or otherwise, and will attempt to hide the fact of previous losses. If he deliberately misrepresents his past experience, and after a loss is found to have done so, the company is able to disclaim all liability. The purpose is to catch the crook, not to use the warranty as a technical reason for escaping liability.

6. *Has burglary, theft or robbery insurance ever been declined or canceled by any company?* This is used primarily for the same reason as the preceding question. It also has its value in enabling the underwriter to get in touch with other companies which may have had experience with the same risk, and to ascertain just what this experience was.

CLASSIFICATION OF INSURED PROPERTY

Property, for the purposes of this coverage, has been classified as follows:

1. Watches, necklaces, gems, precious and semi-precious stones, jewelry, articles of gold, platinum and sterling silver, furs and articles made entirely or principally of fur.

2. Money, securities, stamp and coin collections, wearing apparel, laces, rugs, tapestries, pictures, paintings, plated ware and all other household goods, and personal property common in residences generally, including professional instruments, and electric light, plumbing, gas and water fixtures.

3. Wines, liquors, and alcoholic beverages legally acquired by the assured.

4. Horses, cattle, vehicles, automobiles and motorcycles, and fittings and appurtenances thereof, harness, saddles, tools, and like property, excluding robes, blankets, and wearing apparel while contained in the private stable or garage adjacent to or in the building in which the premises of the assured are located.

5. Articles separately and specifically insured and, therefore, excluded from the preceding groups, with the exception of silverware which may be insured as a collection. These articles must be enumerated and described in detail; for example:

One platinum ring containing solitaire diamond, $1\frac{1}{4}$ carats, name of owner, date of purchase, name of merchant or previous owner, purchase price;

One hudson seal fur coat with beaver collar, length 40 inches, name of owner, date of purchase, name of merchant or previous owner, purchase price.

The first two and the last classifications of property are of the greatest importance in connection with the forms of coverage to be described, because, the essential differences between the forms arise out of the methods employed in insuring these particular types of property.

There are certain standard limitations upon liability applicable to all policies. The first of these is a limitation of \$50 upon the amount of liability for loss or damage to money, securities, and stamp and coin collections. This limit may be increased upon payment of an additional premium. The second is a general limitation providing that no policy may be issued unless it grants coverage of at least \$1000. The latter provision is intended to prevent the issuance of policies for small amounts of coverage, and at premiums which would not cover the actual cost to the company. It thus performs the same function as a minimum premium requirement. Policies may be issued for terms of one or three years. In the explanations of methods of rating which follow it is assumed that coverage is granted for one year only.

FORMS OF RESIDENCE COVERAGE

There are four principal forms of coverage available, each of which may cover loss by burglary only or loss by burglary, theft and larceny. The technical names for these forms with a description of each form follow:

Policy Form 1 (Divided Cover) Without Co-insurance. This has proved itself to be the most popular of the residence forms, and the rates for it serve as the basis for the determination of rates for all other forms. The distinguishing feature of this coverage is the requirement that the total amount of insurance must be allocated to various kinds of property—hence the name “divided cover.” This is an important requirement, for if an assured were permitted to take \$1000 of insurance, and did not specify its application the coverage would actually apply to any property which might be stolen. In this case \$1000 of insurance may be purchased, but it must be allocated either to class 1 property or to class 2 property or divided between the two. This has the effect of requiring the assured to carry adequate insurance if he desires complete protection. From this point of view the requirement accomplishes the same purpose as a co-insurance arrangement.

Insurance of property of classes 3, 4 and 5 is optional with the assured. There is no particular problem here except with reference to insurance on class 5 property where the property is listed and described. The purpose of this section is to enable the assured to secure complete coverage for certain named property. The rate which is charged is lower than the rate applicable to property of either class 1 or 2, because the assured under class 5 takes coverage which is equivalent to 100% of the value of the insured property, whereas the same is not true of the other classes where the coverage is “blanket” and more usually represents but a fraction of the value of the insured property.

Rates for this and other coverages depend upon four elements; territory, type of building, class of property and amount of insurance.

1. *The territory in which the risk is located.* The United States is divided into eight territories which, upon the basis of experience have been found to present varied hazards. An entire state may fall into one or another of these territorial groups although

some states are divided by counties, each division being allocated to the territorial group which most nearly reflects its hazard. Thus, the entire state of Florida is in territory IV, but New York State is subdivided into three parts, the counties of New York, Bronx, Richmond, Kings, Queens, Nassau, Suffolk, Rockland, Westchester, and Erie falling into Territory II; Albany, Monroe, and Onondaga into Territory III; and the remaining counties into Territory IV. Rates vary from the highest which apply in Territory VII to the lowest in Territory VI. Territorial variations apply to rates for property in classes 1, 2, 4 and 5.

2. *Type of building in which premises are located.* There are three classifications of buildings. The first includes private residences occupied exclusively by the assured, and two family houses occupied by not more than two families. The second includes flats, apartments, and hotels occupied by more than two families. The third includes summer and winter residences—residences in the country or at the seashore which are occupied by the assured only during the summer or winter seasons. Each of these classes takes a rate higher than the rate for the preceding class. These variations apply to rates for property in classes 1, 2 and 5.

3. *Class of property insured.* These classes have been described. The rates are quoted per \$1000 of coverage, and follow the hazard, as will be apparent from an example which will be presented.

4. *Amount of insurance.* As a general rule the rate per \$1000 of coverage decreases as the coverage increases. This recognizes the fact that the probability of a loss decreases as the amount of coverage increases. For example, the following table represents the rates for Form 1 coverage on class 1 property located in a private residence in New York City:

Amount of Insurance	Annual Rates	
	Burglary, Theft and Larceny	Burglary Only
\$1000	\$22.00	\$17.60
2000	33.00	26.40
3000	41.25	33.00
4000	46.75	37.40
5000	52.25	41.80
Each Additional 1000	5.50	4.40

The rate for the first \$1000 of burglary, theft, and larceny coverage is \$22.00, whereas the rate for the sixth \$1000 of coverage is \$5.50. These rates measure the hazard, because the hazard is less for each succeeding \$1000 of coverage.

Where insurance is carried on both class 1 and class 2 property the variation in rates in accordance with the amount of coverage introduces a complication unless there is a definite rule for determining the application of the rates for successive \$1000 of coverage. Under the rule which is now in effect the first \$1000 of coverage to be considered is that for class 1 property. The "initial thousand" rate is applied here, and the "additional thousands" rates are then applied in succession, first to the remaining coverage on class 1 property and then to the coverage on class 2 property. An illustration will clarify this point. The rates for Form 1 coverage on class 1 property in New York City have been given on page 54. The rates for class 2 property are twenty-five percent less. Assume that a Form 1 policy is written for a total amount of \$2000 equally divided between class 1 and class 2 property. The calculation of the premium would be as follows:

Coverage	Annual Rates	
	Burglary, Theft and Larceny	Burglary Only
\$1000 on class 1 property.....	\$22.00	\$17.60
\$1000 on class 2 property.....	8.25	6.60
Total.....	\$30.25	\$24.20

The rate for the second \$1000 of burglary, theft, and larceny coverage for class 1 property is \$11.00—the corresponding rate for class 2 property is 25% less or \$8.25. A similar calculation is applicable to the "burglary only" rates. There is no such problem in connection with other classes of property since each class is considered separately.

Continuing this illustration, and adding \$1000 of coverage for each of the remaining classes of property, the total premium in New York City for \$5000 of private residence coverage thus distributed would be determined as follows:

CALCULATION OF PREMIUM FOR A PRIVATE RESIDENCE RISK-
POLICY FORM 1

Coverage	Annual Rates	
	Burglary, Theft and Larceny	Burglary Only
\$1000 on class 1 property	\$22.00	\$17.60
1000 on class 2 property	8.25	6.60
1000 on class 3 property	75.00	60.00
1000 on class 4 property	19.80	15.84
1000 on class 5 property	7.50	6.00
\$5000	\$132.55	\$106.04

Policy Form 2 (Divided Cover) With Co-insurance. This coverage is exactly the same as that granted under Policy Form 1, except that the principle of co-insurance is applied against insurance on class 1 property (the most hazardous) for the purpose of forcing the assured to carry insurance commensurate with the value of his property of this class. The co-insurance clause follows: "The company shall not be liable for a greater proportion of any loss of or damage to property covered under this section than the amount of insurance applying to this section bears to eighty per centum (80%) of the actual cash value of all such property at the time of the loss or damage, whether or not such property is actually within the premises at the time the loss or damage occurs."

The reason for including the clause reading "whether or not such property is actually within the premises at the time the loss or damage occurs" will be apparent upon consideration of a simple example. A banker's wife owns some valuable jewelry which is usually kept in a safe-deposit vault down-town, although it is sometimes brought to the residence for special occasions. It is at these times that the hazard is at its maximum, for criminals are crafty enough to choose the time when they can obtain the greatest value for their efforts. The policy, therefore, requires this property to be included with other property, even though it is not on the premises at all times, and thus adequately protects the company in its position that the coverage shall be reasonably complete and sufficient under all conditions.

The rates for this form of policy are the same as those for Form 1, except that the rates applicable to class 1 property are 30% lower in recognition of the greater ratio of insurance to real value which is obtained by the use of the co-insurance clause. Thus, to take the same example which was used to describe the method

of determining the premium for a Form 1 policy, the calculation in this case would be as follows:

**CALCULATION OF PREMIUM FOR A PRIVATE RESIDENCE RISK—
POLICY FORM 2**

Coverage	Annual Rates	
	Burglary, Theft and Larceny	Burglary Only
\$1000 on class 1 property.....	\$15.40	\$12.32
1000 on class 2 property.....	8.25	6.60
1000 on class 3 property.....	75.00	60.00
1000 on class 4 property.....	19.80	15.84
1000 on class 5 property.....	7.50	6.00
\$5000.....	\$125.95	\$100.76

Policy Form 3. Blanket Coverage (With Insurance on Jewelry, Sterling Silver and Furs Limited to 50% of Total Insurance.)

This Form is similar to Form 1 except in the treatment of property of classes 1 and 2. Under Form 1 this property must be allocated to the two classes, each of which is the subject of separate consideration. Under Form 3 the property is taken as a whole (hence the use of the term "blanket"), and an attempt is made to guard against under-insurance by providing that not more than 50% of the amount of insurance on property of classes 1 and 2 combined shall apply to jewelry, silverware, and furs. Thus, if the policy provides \$2000 of coverage for property of this character, the company's liability is limited to \$1000 on jewelry, silverware, and furs.

The rates for property of classes 1 and 2 under this form of coverage are the same as those for class 1 property under the Form 1 policy. Thus, in this case the premiums for the coverage already outlined for purposes of illustration would be as follows:

**CALCULATION OF PREMIUM FOR A PRIVATE RESIDENCE RISK—
POLICY FORM 3**

Coverage	Annual Rates	
	Burglary, Theft and Larceny	Burglary Only
\$2000 On property of classes 1 and 2 combined with a maximum liability of \$1000 upon jewelry, silverware and furs.....	\$33.00	\$26.40
1000 on class 3 property.....	75.00	60.00
1000 on class 4 property.....	19.80	15.84
1000 on class 5 property.....	7.50	6.00
\$5000.....	\$135.30	\$108.24

Policy Form 4. Blanket Coverage (100%). This coverage (on property of classes 1 and 2) is similar to that granted under Policy Form 3 except that there is no limitation on the company's liability for loss to any particular part of this property. Property of classes 1 and 2 is insured as a group, and the amount of insurance is available to meet any loss which may occur whether or not it involves the most hazardous property. Thus, if \$2000 of coverage is purchased on class 1 and class 2 property combined, the company's liability for loss of jewelry, silverware, and furs is \$2000. No effort is made, therefore, to counteract the tendency toward under-insurance, and for this reason the rates for property of classes 1 and 2 are higher than for any other policy form. They are 25% in excess of the rates for class 1 property under Policy Form 1, producing the following premium for the case which has been used to illustrate the calculation of premiums for other forms:

**CALCULATION OF PREMIUM FOR A PRIVATE RESIDENCE RISK—
POLICY FORM 4**

Coverage	Annual Rates	
	Burglary, Theft and Larceny	Burglary Only
\$2000 On property of classes 1 and 2 combined with no limitation upon the application of this coverage to the two classes of property.....	\$41.25	\$33.00
1000 on class 3 property.....	75.00	60.00
1000 on class 4 property.....	19.80	15.84
1000 on class 5 property.....	7.50	6.00
\$5000.....	\$143.55	\$114.84

RELATIVE IMPORTANCE OF RESIDENCE POLICY FORMS

An idea of the popularity of the various residence policy forms may be obtained from an analysis of the premium income of a group of insurance companies for 1922:

Policy Form 1

Burglary, Theft and Larceny	\$5,059,906
Burglary Only.....	29,688

Policy Form 2

Burglary, Theft and Larceny...	177,884
Burglary Only.....	1,819

Policy Form 3	} (Not written during year of 1922—Estima- ted writings for 1923 not more than \$750,000.
Burglary, Theft and Larceny. Burglary Only.....	
Policy Form 4	
Burglary, Theft and Larceny...	556,325
Burglary Only.....	3,613

SPECIAL EXTENSIONS OF RESIDENCE POLICIES

Space will not permit an extensive treatment of this subject. It is sufficient to note that residence policies may be extended to cover business or professional occupancy of residence premises, such for example, as the occupancy of dentists, physicians, dress-makers, and milliners, churches, clubs and boarding houses, the property of servants and guests, and other allied hazards which do not readily lend themselves to treatment under any of the remaining classifications of the business.

PERSONAL HOLD-UP INSURANCE

Personal Hold-up Insurance is closely related to Residence Insurance, and is usually written by attaching an endorsement to a Residence Insurance policy, although in exceptional cases it may be written in a separate policy. The latter practice is frowned upon by underwriters for two reasons: first, personal hold-up is less desirable than residence coverage because of the extreme moral hazard involved, and second, since it is considered to be incidental to the residence coverage it is desirable that both coverages should go together in order that the assured may have complete protection. In either case the coverage, the conditions of insurance, and the rates are the same.

The policy covers money and securities (to an amount not exceeding \$50), jewelry, watches, clothing and articles of personal adornment owned by the assured, by permanent members of his household who do not pay rent, and by relatives of the assured permanently residing with him provided these persons are over the age of 18 years. Property of domestic servants or other employees is not covered; neither are "articles carried as samples, or for sale, or for delivery after sale." Loss of the insured property covered must be the result of a robbery—"a felonious and forcible taking of property from the person of the assured or any of the individuals described as covered—

accompanied by bodily injury to the person from whom the property is taken or by putting such person in fear of bodily injury," and must occur within the limits of the United States or Canada, although for double the rates the coverage may be extended to the remainder of the world.

The rates for this form of insurance are quoted per \$1000 of coverage per annum and depend upon the territory in which the assured lives as well as upon the amount of insurance. The territorial divisions applicable to residence rates apply here also, although, instead of eight rate variations, there are only five as several of the territories are grouped and take the same rates. There are, in each territory, only two rates—one for the first \$1000 of coverage, and a second and lower rate for each succeeding \$1000 of coverage. Thus, the rates in New York City (Territory II) are as follows:

Amount of Insurance	Annual Rates
\$1000.....	\$6.00
Each additional \$1000.....	4.00

No policy is issued for less than \$1000. The minimum annual cost in New York City is, therefore, \$6.00; \$5,000 of coverage in New York City would cost \$22.00 per annum.

BANK BURGLARY AND ROBBERY INSURANCE

POLICY PROVISIONS

Bank Burglary and Robbery Insurance is available to banks and other financial institutions which present similar hazards, such as trust companies, building and loan associations (if they are open every business day and are equipped like banks), state, county, and city treasurers' offices, and post offices operating postal savings banks. There are three separate kinds of coverage which are usually issued in a single policy* for the convenience of both insurance company and assured.

*The Standard Form Bank Burglary and Robbery Policy including all three of these coverages has been developed through joint effort on the part of insurance companies and a special committee representing the American Bankers Association. It is copyrighted by the latter organization, but by special arrangement between the Association and individual insurance companies it may be issued to non-member banks.

These are:

1. Coverage against loss by burglary of money and securities feloniously abstracted, during the day or night, from within that part of any safe or vault to which the insurance may apply, by any person or persons who shall have made forcible entry by the use of tools, explosives, electricity, gas or other chemicals, while such safe or vault is duly closed and locked.* This coverage is effective not only while the safe is located on the assured's premises, but also in case the burglars remove it and open it elsewhere. Thus, a burglary would be covered where the vault in a bank is forced, and the safe which is inside the vault is transported several miles into a nearby forest, and there forced open and rifled of its contents. Such cases are of not infrequent occurrence.

2. Coverage against loss by robbery of money and securities from within any part of the premises exclusively occupied by the assured or his officers or employees. Robbery is defined as "a felonious and forcible taking of property: (a) by violence inflicted upon the person or persons having the actual care and custody of the property; (b) by putting such person or persons in fear of violence; or (c) by an overt felonious act committed in the presence of such person or persons and of which such person or persons were actually cognizant." This definition clearly excludes cases where property has mysteriously disappeared.† It is also clear that theft of property is not covered; it must be forcibly taken from its custodians against their will. Theft by

*It should be noted that as a general rule the coverage against burglary is limited to money and securities located in specified parts of safes and vaults. It is provided, however, that if the insurance covers property in a burglar-proof chest located within a safe, 10% of the insurance shall automatically apply to money and securities outside the chest but within the safe, if the safe is burglar-proof, and to securities, silver, and subsidiary coin outside the chest if the safe is fireproof only. A similar provision applies to property outside a safe but within a vault. These provisions recognize the fact that it may not be possible to keep all of the money and securities in the specified location because of bulk or because of late arrival after the safe or vault has been locked for the night by a time lock. Where the insured property is within a safe which in turn is located within a vault, both the vault and the safe must be forced open in the manner described if the loss is to be covered.

†It was originally required that the robbery must be witnessed by not less than two competent witnesses.

employees is excluded because protection against this hazard may be obtained in the form of fidelity bonds. Other thefts are excluded because of the abnormal moral hazard involved. Robbery within the premises only is covered, thus requiring the assured to purchase other forms of robbery protection against the outside hazard. The premises as defined include not only the banking enclosure but also other places where business is actually conducted, such as private offices of officials and the directors' room.

3. Coverage against loss arising out of damage (whether by fire or not) to money and securities, and damage (except by fire) to the premises and to all safes, vaults, office furniture and fixtures caused by burglary (or robbery) or attempt thereat. If the policy covers burglary only, the damage to property must result from burglary or attempt at burglary, and a similar limitation applies if robbery only is covered. Where both burglary and robbery are covered, damage may result from either hazard.

There are two items in connection with these coverages which require further explanation. They are (1) definitions of the terms "money" and "securities," and (2) the ownership of insured property for the loss or damage of which indemnity may be recovered.

"Money" means "currency, coin, bank-notes (signed or unsigned), bullion, uncanceled United States postage and revenue stamps in current use, War Savings Certificate Stamps not attached to Registered Certificates, and 'Thrift' stamps."

"Securities" means "all negotiable or non-negotiable instruments, documents or contracts representing money or property."

There is a peculiar provision for the determination of the value of securities in case of loss or damage. As a general rule the value of property which is lost is fixed at the market price at the time of loss. In this case the actual cash or market value at the time of settlement is taken instead. This rule was adopted at the request of the American Bankers Association. It arises out of the fact that some banks are required by law to own a certain amount of specified securities. Where these securities are stolen and there is some delay in adjusting the loss, the bank might be forced to go into the market and replace the securities at prices in excess of those which obtained at the time of loss. This would mean a loss if the value were determined as of the

date of loss. The companies do not suffer under the rule and have been glad to concede the point to the bankers, because bank losses are usually promptly adjusted, and because in the long run the market price at the time of adjustment is as likely as not to be less than the price at the time of loss.

The "money or securities" which are covered may be owned by the assured, may be held by the assured in trust or as collateral, may be held by the assured for safe keeping, or may be held under other conditions making the assured legally liable to the owner for their loss. It is provided, however, that in the adjustment of a loss under the policy the property of the assured shall receive first consideration, and that the insurance shall not be applicable to other property unless the payment of indemnity to the assured fails to exhaust the coverage. Damage to the premises and to safes, vaults and office furniture and fixtures is only covered provided the assured is the owner, or is legally liable for such damage.

There are other restrictions upon the liability of the insurance company. The company is not liable "for loss of or damage to securities unless the assured shall, after their loss, use due diligence in endeavoring to prevent their negotiation, payment, or retirement." This provision is designed to force the assured, who has all pertinent information and is in a position to do so, to take prompt steps to minimize a loss. Nor is the company liable "unless the records of the assured have been so kept that the amount of loss can be accurately determined." It is reasonable to require the assured to keep records of this character without which the adjustment of a loss would be difficult, if not impossible and it would be easy to introduce a substantial element of fraud into the transaction. A further restriction arises in cases where "the assured or any associate in interest, or a regularly employed servant or employee of the assured, is a party to the crime, either as a principal or an accessory, in effecting or attempting to effect the loss." This avoids a conflict with fidelity bonds which financial institutions may obtain for the purpose of protecting themselves against dishonest acts of their employees, and also relieves the insurance company of the extraordinary hazard of "inside jobs." Fire loss or damage is excluded unless the fire was caused by burglars (or robbers) in

attempting to burglarize (or rob) the bank, and then only loss or damage to money and securities is covered and not loss or damage to the premises and to equipment. Here again the company safeguards itself against abnormal hazard and also avoids conflict with other forms of insurance. A fire in a bank may so disorganize the premises as to encourage the commission of a burglary or robbery. This hazard is not covered. The final exclusion, which is self-explanatory, is of "loss or damage contributed to by invasion, insurrection, war, riot, strike, water, or the action of the elements, or undue exposure of any safe or vault during repairs to either, or to the building in which either is contained." The words "strike" and "riot" may be eliminated upon payment of an additional premium.

As a general rule a mistake in a declaration is equivalent to a breach of warranty and vitiates the policy. There is an exception to this rule in the present case. As will be shown, the rates of insurance depend upon certain protective devices and upon the condition of the safe, chest, or vault containing the insured property. This introduces technical problems, and it is not unlikely that the assured as a layman may unintentionally give incorrect information, and thus mislead the company. If he does so, the policy is not forfeited, nor is the coverage reduced but the premium is subject to recalculation in accordance with the facts. If the correct information increases the premium, the assured must pay; if it reduces the premium, the company must refund the proper amount.

It is also provided that if safety appliances (which the assured warrants will be kept in good working condition) fail to operate for reasons beyond his control, at least one watchman will be provided to guard the insured property until the device is again in proper working condition.

Where the assured wilfully or negligently fails to maintain any service or to observe a condition agreed upon in the declarations, and thus causes the hazard to increase, the insurance is continued, but the amount of coverage is reduced to that amount which the premium paid would purchase for the actual hazard. Thus, if the assured warrants that three watchmen will be maintained to guard the premises, and deliberately discharges two of these, and does not replace them, the amount of coverage is reduced to that

which the premium paid would purchase upon condition that a single watchman would be maintained.

The amount of coverage is reduced by a loss and, in order that the assured may continue to have complete protection for the remainder of the policy term, it is specified that the insurance shall be immediately reinstated, provided the damage caused to the premises and to safety appliances shall have been repaired so that the physical condition of the risk is the same as it was formerly. The assured is required to pay for this additional coverage. Thus, assume a policy for \$200,000, issued January 1, 1924. On June 30, 1924, a loss of \$100,000 is paid, thus reducing the face value of the policy to \$100,000. This deficiency is automatically repaired, and the assured is required to pay for an additional \$100,000 of coverage for the remainder of the policy term, which would be for six months if the policy were originally issued for a period of twelve months. He would, therefore, pay one-half of the annual premium on \$100,000 of coverage.

RATES

Even where all three forms of coverage are written in a single policy, the premium for loss (or damage) by burglary and that for loss (or damage) by robbery must be separately calculated as different principles are applied in the two cases. The problem of rates, therefore, may be considered just as if the two hazards were treated as entirely separate and distinct. These policies may be issued for terms of one or three years. In the discussion which follows, the rates for coverage of one year are used as a basis for description and analysis.

Burglary Rates. Manual rates for burglary coverage are subject to discount for various conditions which tend to reduce the hazard. Inasmuch as the property must be specifically located in safes and vaults the character and construction of this equipment is given first consideration and manual rates are established with proper regard for this factor. There are ten vault classifications (1-10) and eight safe classifications (A-H). For example, a class 4 vault is defined as follows:

Burglar-proof vault with steel walls at least one-half inch thick; or masonry vault lined throughout with steel at least one-half inch thick; or masonry vault with steel rails or rods imbedded in walls at least twelve inches thick; or vault of non-reinforced concrete or stone

at least eighteen inches thick. A number 4 vault shall have one or more steel doors, no door being less than one inch thick, but all doors aggregating at least two and one-half inches in thickness.

A class E safe is defined as a

Safe, with fireproof body, containing a burglar-proof chest with steel door, at least two inches thick, and having in addition a middle door of steel two inches (or more) in thickness, equipped with a combination lock—total thickness of steel four inches.

Since a safe of any of the eight grades may be located within a vault of any of the ten classifications, there are eighty possible combinations, for each of which a manual rate is quoted in terms of \$1,000 of coverage. These manual rates are subject to discount for a number of conditions which will be enumerated and explained:

1. *Section of the country in which the risk is located.* Experience has demonstrated that the hazard of burglary is greater in some sections of the country than in others. The safe and vault may be the same, but the exposure to loss is not, as criminals are more active in certain localities than in others. To recognize this differential the states have been divided into five groups on the basis of statistical data and basic manual rates are subject to discounts ranging from nothing to 40%, depending upon the classification of the state in which a bank is located. For example,

Oklahoma is in a group for which there is no discount.

Arizona, Idaho, Illinois and New Mexico are in a group for which the discount is 10%;

Arkansas, California, Minnesota and Nebraska are in a group for which the discount is 20%;

Alabama, Michigan, Ohio and South Carolina are in a group for which the discount is 30%;

Delaware, Maine, Massachusetts and New York are in a group for which the discount is 40%.

2. *Size of population of the town or city in which the risk is located.* Size of population is supposed to measure the extent to which a risk derives protection from municipal police officers. No discount at all is permitted if the population is under 1,000 persons. If the population is between 1,000 and 1,999 persons the discount is 10% and there are several other grades until cities of over 25,000 population are reached, where the discount becomes uniformly 40%.

3. *Safeguards employed.* There are two recognized methods of guarding property against burglars, the use of watchmen on or about the premises and the use of alarm systems.

There are three "watchmen" discounts ranging from 30% per man (with a maximum allowance for three men) where a private watchman remains on duty within the premises at all times between 7 P. M. and 7 A. M. and signals an outside central station at least hourly, to 10% per man (with a maximum allowance for three men) where a private watchman is on duty, but does not register periodically so that it is not certain that he is actually on the job at all times.

Alarm systems are designed to arouse the authorities when the criminals come in contact with wiring which communicates either with an outside central station where guards are maintained and where signals are registered or with a gong or siren on the outside of the building. The risk which is adequately safeguarded by these and other devices represents a lower degree of hazard than the risk which is not so protected, and therefore deserves a lower rate. Discounts are provided for several of these items.

The companies have arranged with the Underwriters Laboratories to classify bank alarm systems into three classes (A-B-C) according to their physical and mechanical characteristics. They also have recognized two grades of installation for these systems—partial and complete. For example, a "complete" installation is one which "protects top, bottom, all sides, and outer door or doors of safe or vault, and which is connected with an outside central station or with a loud sounding gong or siren on outside of building." Since each of the three classes of alarms may be either completely or partially installed, there are six discounts available. An A alarm system completely installed represents maximum protection, and is assigned a discount of 65%. A C alarm system partially installed represents the other extreme, and entitles a risk to a discount of only 20%. These credits are not available unless the alarm system is certified by the Underwriting Laboratories. There is a credit also for certain locking devices which may be installed on safes and vaults.

4. *Limitation of coverage.* If securities and no form of money except silver and subsidiary coin are covered, the hazard is reduced and a discount of 20% is allowed. The same discount

applies if the policy is limited to silver and subsidiary coin. If money is entirely eliminated and only securities are covered, the discount is 25%.

5. *Division of coverage.* As a general rule, the coverage is "blanket" and extends to all the insured property. If there is a distinct advance allocation, the hazard is reduced because of the limitation which is imposed upon the company's liability, and the rate may be discounted. For example, if there are three safes (No. 1, No. 2 and No. 3), and \$100,000 of blanket coverage, the \$100,000 may be lost because of a burglary to any one of the three safes. If, however, there is a distinct allocation of the coverage—\$50,000 to safe No. 1, \$25,000 to safe No. 2, and \$25,000 to safe No. 3—all three safes would have to be burglarized to produce a \$100,000 loss. This factor is recognized in the determination of the premium. Thus, if not more than 50% of the total insurance applies to any one safe, chest or vault at one location, the rate may be discounted 20%. If not more than 75% of the total insurance is so applied, the discount is 10%.

An example will demonstrate the method of determining the burglary insurance premium for a risk of this character. A form is used for this purpose in order that each item may be considered in its proper order. The discounts are applied consecutively.

CALCULATION OF ANNUAL PREMIUM FOR BANK BURGLARY INSURANCE

\$1,000,000 coverage on securities only, located in five Class E safes (liability equally distributed in advance) in two Class 4 vaults. One watchman on duty between 7 p. m. and 7 a. m., who signals central station hourly. An "A" burglar alarm completely installed. Risk located in Chicago, Illinois.

1. Number of thousands of insurance multiplied by table rate (\$3.70 per \$1,000).....	\$3,700.00
2. Less territorial discount (10%).....	3,330.00
3. Less population discount (40%).....	1,998.00
4. Less discount for burglar alarm (65%).....	699.30
5. Less discount for watchman (30%).....	489.51
6. Less discount for division of insurance (20%).....	391.61
7. Less discount for "securities only" (25%).....	
Net Premium.....	293.70

It will be noted that there is no variation of rates in accordance with the amount of coverage as was the case in Residence Insur-

ance. This is because, as a rule, when a safe or vault is entered by burglars the entire contents are taken. The hazard is, therefore, more concentrated, and a large loss is nearly as possible as a smaller loss. Notwithstanding this fact, there is a point at which some concession in rate is made. A popular form of coverage for banks is the so-called "Blanket Bond," which covers many hazards, including burglary and robbery. A bank may have one of these bonds which protects it up to a certain point, but it may not care to extend the bond itself because the broad coverage which is granted by the bond requires a substantial rate. In order to protect these banks more adequately against burglary (and robbery), the companies have arranged to offer *excess* burglary (and robbery) coverage. Thus, a bank with a blanket-bond of \$100,000 may secure an additional coverage of \$100,000 for burglary (or robbery, or both), and the normal rates for this coverage are discounted, depending upon the amount of primary insurance under the bond. For example, the burglary (and robbery) rates are reduced 50% for excess insurance if the primary insurance amounts to at least \$500,000. The insurance under the excess policy does not attach until the coverage under the bond has been exhausted.

Robbery Rates. Originally the only form of policy available to bankers was limited to the burglary hazard. Later, as a means of popularizing the insurance, this form was extended to cover daylight robbery. In the beginning the robbery coverage was intended to take care of "counter cash," the amount of insurance for this hazard being limited to 20% of the total amount of insurance granted by the policy. Thus, on a policy granting coverage of \$100,000 the robbery coverage was not permitted to exceed \$20,000. Later this allowance was increased to 40% and finally to 100% without, however, any additional premium requirement. Thus, until 1919 the robbery coverage was considered incidental to the burglary coverage, and was included in the burglary policy without additional cost. It is quite apparent that the companies originally did not believe the robbery hazard to be serious. But conditions changed, and it became obvious that this original conception was no longer tenable. Developed experience in 1919 demonstrated the startling fact that two thirds of the losses under these policies

were from robbery. The robbery coverage was then separated and made the subject of rating on its individual merits.

In this case also the manual rate is quoted in terms of \$1,000 of coverage. It depends primarily upon the territory in which the risk is located. For example, the manual rate in Illinois is \$4, in Missouri \$2 and in New York \$1. These are maximum rates, and are subject to discount in accordance with the following factors, all of which represent conditions tending to improve the hazard:

1. Where there is daytime special watch service maintained in the banking room or in the corridor thereof, the discount is 10% per guard with a maximum allowance for three guards.

2. Where there is a daytime burglar alarm system connected either with an outside central station or with a loud sounding gong on the outside of the premises, the discount is 10%.

3. Where the property covered by the insurance against loss is restricted to securities and/or silver and subsidiary coin, the discount is 20%. If securities only are covered, the discount is 25%.

Special rating is provided for cities having a population of 1,000,000 or over. In these cities banks which have a working force of at least twenty-five persons, of which twenty or more will always be on duty when the bank is open for business may be given a base rate of \$1.00, to which the foregoing discounts may be applied.

The discounts are deducted consecutively. For example:

CALCULATION OF ANNUAL PREMIUM FOR BANK ROBBERY INSURANCE

\$1,000,000 robbery coverage on securities only in bank in Chicago, Illinois, having a working force of at least twenty-five people, twenty of which are always on duty during business hours. One daytime watchman on duty in bank, and a daytime central station alarm system.

The base rate is \$1.00 as Chicago is a city of over a million population, notwithstanding the fact that Illinois takes a rate of \$4.00.

1. Number of thousands of insurance multiplied by manual rate (\$1 per \$1,000).....	\$1,000.00
2. Less discount for burglar alarm (10%).....	900.00
3. Less discount for watchman (10%).....	810.00
4. Less discount for "securities only" (25%)—Net Premium.....	607.50

If the coverages in the case used for illustration are written in a single policy the amount of insurance would be \$2,000,000, and the premium would be the sum of the two separate premiums or \$901.20. It should be explained, however, that the combination of coverage in this manner does not alter the fact that the liability of the company is limited to \$1,000,000 for loss or damage by burglary, and to \$1,000,000 for loss or damage by robbery. Thus, in case of a burglary loss of \$1,500,000, the company would be responsible for only \$1,000,000 even though the face value of the policy for the combined coverage is \$2,000,000.

SAFE DEPOSIT BOX INSURANCE

The responsibility of a bank or safe deposit company for property left in its vaults by persons renting facilities for this purpose constitutes a nice legal question. In general it may be said that there is no responsibility unless it can be proved by the claimant that the loss was due to negligence on the part of the bank (or safe deposit company). But the question of negligence is not easily determined, as the first case to be decided by a higher court will indicate. The decision in this case* was recently handed down by the California District Court of Appeal.

The Bank of Tracy operated a branch in Byron, California, a small village of 250 population. This branch was housed in a concrete building with walls eighteen inches in thickness. The vault was of the same type of construction, with iron doors. The openings in the outer walls of the building were not guarded except those in the rear, which were protected by iron gratings. There was no alarm system. Private watchmen were not employed, and the local police force was extremely inadequate. Telephone service out of town stopped at 7 p. m. The street lights were maintained by popular subscription, and were not always burning. In the vault the bank maintained about 100 safe deposit boxes which were offered to the public at an annual rental fee of \$2. The bank was burglarized one night by unknown persons using an oxyacetylene torch, and not only was the property of the bank stolen but entry was made into the safe deposit boxes. Eighteen claims were made against the

*Webber v. Bank of Tracy—District Court of Appeal, First District, Division 1, California—February 28, 1924.

bank and judgments aggregating approximately \$12,000 were obtained in the lower court. On appeal the upper court reversed the findings of the lower court in a test case on the ground that the bank had used that degree of care in protecting its own property and the property of others which was customary under like circumstances in other sections of the state. The court said:

While plaintiff has wholly failed to affirmatively show negligence, defendant has shown by undisputed evidence that in maintaining its safe deposit vaults it conformed to the practice and conduct of all other country banks in California, situated in towns of like population and character. Briefly, this evidence shows without conflict or contradiction that the bank building was as good or better than the ordinary country bank building in California; that the interior arrangement of the bank was the ordinary and usual arrangement; that the bank vaults were protected by doors similar in all respects to those in other banking institutions in California in similar sized communities; that no bank in California up to the time of the robbery* in a community of less than 1,000 inhabitants had either a night watchman or a burglar alarm.

It is quite obvious that the ordinary care which is required of the bank varies with time and place, with customs in the business and with other elements, so that it cannot be predicted definitely just what the decision will be in any individual case.

With the legal situation as it is, the companies have devised two methods of issuing this coverage. It may be sold to banks or safe deposit companies which wish, as a matter of service, and as a precaution against a possible case where legal liability for property may be established, to purchase coverage for their clients. This form of coverage applies to property of the bank, and to property of safe deposit box renters. Legal liability on the part of the bank need not be established as a condition precedent to the payment of a loss, although the insurance company does agree to defend suits for damages if they are brought against the assured.

It may also be sold direct to those whose property is located in safe deposit boxes. Thus, a person whose property is at risk may either insure it direct, or, in case the bank or safe deposit company offers a limited amount of protection under a group policy protecting all of its clients, may obtain coverage beyond

*Attention is directed to the erroneous use of the term "robbery" in connection with the court's description of the crime.

this amount and a loss, if one should occur, would then be subject to pro-rata adjustment as between the two policies.

The coverage in either case may be for loss (and damage) by burglary or robbery or both burglary and robbery, and applies only to securities, jewelry and silverware; money is not covered. It may be issued in a separate contract or by attaching an endorsement to the standard bank policy described in the preceding section.

Where the coverage is issued to the bank or safe deposit company, the liability for loss from any one box is limited to 10% of the total amount of insurance. The reason for this provision, which has the effect of requiring the assured to purchase an amount of insurance equivalent to ten times the coverage which is desired on an individual box, is that the company never knows how much property is in individual boxes. This is the only method available, therefore, for limiting liability. Without such limitation the loss from a single box might exhaust the entire amount of insurance. It is also provided that, in case losses from more than ten boxes exhaust the amount of insurance, the claimants shall share in the total amount in proportion to their respective losses. Thus, there will be a scaling down of claims to the value of the policy, but the relativity as between claimants will remain unchanged. These limitations are unnecessary where coverage is issued direct to the individual box renter.

The rates charged for the burglary hazard are the same as those charged banks for burglary coverage limited to securities in safes and vaults. For the robbery coverage the rates also follow those for banks, but in this case the bank rates (for money and securities) are subject to discount. This amounts to 40% for that part of the insurance up to \$200,000, and to 75% for that part of the insurance in excess of \$200,000. There are good reasons for these discounts. First, the hazard is less because in this case the property is locked in substantial strong boxes while in the case of robbery coverage for banks it may be out of the safe or vault and otherwise exposed. Second, time is important to criminals in committing a robbery, and as each safe deposit box must be opened individually, it is not likely that the contents of many will be taken in a single instance.

One difficulty in writing insurance for individual box renters, arises out of the fact that the bank or safe deposit company

does not care to disclose the complete description of the vault. No criticism can attach to the bank or company for this attitude because it is obvious that a criminal would find his task much easier if he could obtain this information, and if it were indiscriminately disclosed to renters it is likely that criminals would be the first to see the advantages of the arrangement. This has led to the development of a special rule for rating these policies in cities of 1,000,000 inhabitants. In these cities the description of the vault is not required, nor is consideration given to protective measures such as alarm systems and watchmen. The rates are \$1.00 per \$1,000 per year for burglary coverage, and \$.50 per \$1,000 per year for robbery coverage. At the present time there is a movement under way to extend this special rating plan to all towns and cities regardless of population. It is proposed, however, to limit the use of these special rates to safe deposit boxes housed in vaults which meet certain standards of construction. It might appear that the use of a warranty to the effect that the vault is of a certain type of construction would be detrimental to the assured because of his lack of knowledge on this subject, but this is not the case because the exact construction in the individual case need not be specified; all that is required is that the policy shall warrant that the construction is of one of several types which are enumerated. The bank or company will not hesitate to give an affirmative or a negative answer to an inquiry which would develop the necessary information, even though there would be hesitancy in divulging the exact details of the vault construction and the preventive measures employed, all of which figure in determining the rates for bank insurance, which are normally used as a basis for the calculation of safe deposit box insurance rates.

MERCANTILE OPEN STOCK BURGLARY INSURANCE

Mercantile Open Stock Burglary Insurance is designed to meet the needs of storekeepers, manufacturers and others who have stocks of goods on hand which may be stolen when the premises are closed and the regular working force is not about to protect them. The designation "open stock" signifies that the stock which is covered is in exposed places about the premises, although the coverage extends also to property in safes or other

protected places. The policy covers loss of and damage to insured property resulting from burglary or attempt thereat while the premises are not open for business. The usual definition of burglary applies so that theft* and robbery losses are excluded. It must be shown that there was forcible entry into the premises from the outside. Thus, if a criminal were to enter the premises during business hours and secrete himself and later, after taking some merchandise, force his way out, the loss would not be covered.

The insured property includes merchandise, furniture, fixtures and equipment but does not include money, which must be separately insured. Merchandise is covered when it is owned by the assured, held by him in trust or on commission, sold but not removed from the premises, and when the assured is liable to the owner for its loss or damage. Although there is not always legal liability in such cases as tailoring establishments, laundries, dyeing and cleaning shops and jewelry stores where property of others may be on the premises for repair, renovation or cleaning, it is the usual practice of the companies to cover their losses.

The premises are limited "to that portion of the interior of the building occupied by the assured in conducting his business." The exact location of the premises is an important consideration because of its bearing upon the physical hazard and because of the necessity of providing safeguards and other protective devices. Showcases or show windows not opening directly into the interior of the premises are excluded, as are also public entrances, halls and stairways. These exclusions are reasonable because in these cases goods do not have the protection afforded to merchandise within the premises proper and the company should not be called upon to assume this abnormal hazard. It is provided, however, that goods in outside showcases may be specifically insured at a definite rate. Show windows opening into the premises are included in the coverage, although furs, or articles made entirely or principally of fur, are not covered in such show windows without extra charge. Large losses of furs from show windows are possible because criminals can smash the glass from the outside and make off with fur garments even

*Loss of merchandise by theft and larceny may be covered by endorsement under certain conditions but an additional premium is required.

though there may be alarm protection. The "snatch and run" burglary takes but a moment's time while the average time required by a central station alarm company in responding to an alarm is at least several minutes, depending upon the distance of the central station from the protected premises.

There are several limitations upon the liability of the insurance company, some of which are unique. While damage to merchandise, furniture, fixtures and equipment in the premises is covered if the assured is the owner or is liable for such damage, damage by fire and damage to glass and to lettering or ornamentation thereon is excluded. The first of these exclusions is found in other forms of burglary coverage but the last is not found elsewhere except in Mercantile Safe Burglary and in Interior or Store Robbery policies. It is intended to avoid a conflict with Plate Glass Insurance which covers this hazard.

Jewelry is treated as a special class of property, the normal coverage being limited to \$50 on any one article, although a higher limit per article may be obtained upon payment of an additional premium. There is also a special rule covering cases where insurable property is held by the assured as a pledge or as collateral for an advance or a loan. Here the company's liability is limited to the amount advanced or loaned plus the interest actually accrued thereon at legal rates, subject to the limit of \$50 on any one article of jewelry. Loss of or damage to merchandise, furniture, fixtures or equipment encumbered by chattel mortgage is not covered at all because of the extreme moral hazard which is involved under such circumstances and of the possibility of controversy in ascertaining the assured's equity in such property at the time of adjusting a loss.

The company is not liable if the assured, one of his associates in interest or one of his servants or employees is implicated as a principal or an accessory in effecting or attempting to effect the burglary. Nor is it liable unless books and records are regularly kept from which the amount of loss can be ascertained. Other conditions which relieve the company from liability are fire in the premises or in the building housing the premises, war, invasion, insurrection, riot, strike, water or the action of the elements, although some of these restrictions may be removed by the payment of an additional premium. It is provided, finally, that losses are not covered if they are caused or contributed to

by any change in the condition of the risk of which the company has not been advised.

Originally this coverage was written without a co-insurance requirement but the experience of the companies became so adverse that it was necessary to introduce the co-insurance principle in a limited form because it was obvious that the cause of the adverse experience was failure of the assured to carry an adequate amount of insurance. This change in underwriting methods was made in 1921 and has been described as follows:*

In February, 1921, a new standard policy containing an 80 per cent co-insurance clause was placed on the market by all companies. The 80 per cent clause in this case could not apply in the same manner that it applies in Fire Insurance because there is not the same possibility of a total burglary loss that there is of a total fire loss. A furrier with a \$10,000 stock should probably carry 100 per cent, or at least 80 per cent Burglary Insurance, but this is not true of the furrier who carries a stock valued at \$200,000 because burglars could not carry away, or at least never have carried away, furs valued at that amount, although it is true there have recently been fur losses in some of the larger cities ranging from \$25,000 to \$50,000, with at least one fur loss that involved a claim of \$75,000. The problem which confronted the Burglary Insurance Underwriters was to fix the maximum amount which was deemed necessary for each store-keeper in the various classifications to carry. If this amount is carried the co-insurance clause does not apply. If the value of the goods insured is less than the co-insurance limit specified in the policy, the assured is required to carry insurance up to 80 per cent of the value, or the loss is pro-rated in the proportion which the amount of insurance bears to 80 per cent of the value. If a haberdashery and men's furnishings store carries a stock of \$15,000, the amount of insurance required by the co-insurance limit is \$10,000, and if the assured carries only \$7,000 insurance he can collect seven-tenths of his loss instead of seven-twelfths, \$10,000 being considered the largest burglary loss that can occur in a store of this kind, and, therefore, this amount is used as a basis for applying the 80 per cent co-insurance clause; but if the value of such a stock is \$8,000, the assured is required to carry at least \$6,400 insurance, or his loss will be pro-rated in the proportion which the amount of insurance bears to \$6,400.

The co-insurance limit varied with the kind of property, increasing in amount as the property increased in "stealability,"

*Garrison, F. S., "Burglary, Theft and Robbery Insurance." Lectures in Casualty Insurance. Delivered Before Evening Classes in Insurance of the Insurance Library Association of Boston in 1922. pp. 138-9.

as measured by its value, its bulkiness and the ease with which it may be disposed of after it is stolen. Thus, the limit was highest for silk fabrics, which are of great value for a small unit of material and can be readily realized upon by the criminal, and lowest for steel and iron castings, which can be disposed of easily enough but which are of such bulk and of such relatively small value as to make a large loss unlikely.

This system is in existence today with two modifications. The co-insurance percentage varies in different sections of the country where there are variations in hazard and a similar variation of co-insurance limits has been established for certain classes of property.

There are four rate territories ranging from territory I, which comprises states and sections of states where the hazard is highest, to territory IV, where the hazard is lowest. The co-insurance percentages for these territories are as follows:

Territory	Co-insurance Percentage
I	80
II	60
III	50
IV	40

This grading of the co-insurance percentage was intended primarily as a means of popularizing the insurance. It, therefore, rests upon very practical reasoning and it must be admitted that the graduation cannot be justified on any other grounds. A store dealing in carpets and rugs, to secure complete coverage is required to carry insurance in territory I in an amount equal to 80% of the value of its stock or \$10,000 (the co-insurance limit for this class) if 80% of the value exceeds this amount. Thus, if the value of the stock is \$20,000, insurance in the amount of \$10,000 satisfies the co-insurance requirement. If the value of the stock is \$10,000, \$8,000 of coverage is necessary. Now consider the owner of such an establishment in territory IV where the hazard is lowest. With a stock of \$20,000 he would be required to carry \$10,000 of insurance or, if the value of the stock were \$10,000, \$8,000 of coverage would be required if the co-insurance requirement were the same as in territory I. The

result would be that he would probably refuse to insure at all. The amount of coverage required would seem disproportionately large when compared with the value of his stock, particularly in view of the fact that the hazard in his territory was admittedly the lowest in the country. It was to overcome this resistance and to bring burglary insurance within the means of this class of people that the requirements were altered. Business of this character is desirable (more so, in fact, than the bulk of business which is offered freely and without any effort on the part of the companies) and tends to broaden the selection of risks, thus improving the general experience.

With the rules as they exist today, the co-insurance limit for this particular risk does not vary but the co-insurance percentage is only 40% in territory IV, so that the merchant in Territory IV with a stock of carpets and rugs worth \$20,000 need carry insurance of but \$8,000 to fully meet the co-insurance requirement and only \$4,000 of insurance is required for a stock of \$10,000 value. This principle is recognized also in other territories, the co-insurance percentage varying with the hazard until the 80% percentage is reached, where the hazard is greatest.

Another similar variation which was adopted for the same reasons and in order to meet the situation created by varying co-insurance percentages on certain classes of property is a graduation in the co-insurance limits for the more hazardous classes of merchandise where the co-insurance limits are substantial. For two hazardous classes of merchandise the co-insurance limits vary by territories as follows:

Trade Group	Example of Class of Merchandise	Co-Insurance Limits in Each Territory			
		I	II	III	IV
3	Dry goods (excluding silks, satins and furs).....	\$20,000	\$15,000	\$10,000	\$10,000
4	Dry goods (including silks, satins and furs).....	40,000	30,000	25,000	20,000

Thus, two dry goods merchants dealing in general merchandise but not handling silks, satins and furs, must carry the following amounts of insurance to secure complete protection:

	Territory			
	I	II	III	IV
A—Stock valued at \$100,000.....	\$20,000	\$15,000	\$10,000	\$10,000
B—Stock valued at \$25,000.....	20,000	15,000	10,000	10,000

whereas, two dry goods merchants dealing in general merchandise and also in silks, satins and furs, are required to carry the following amounts of insurance:

	Territory			
	I	II	III	IV
C—Stock valued at \$100,000.....	\$40,000	\$30,000	\$25,000	\$20,000
D—Stock valued at \$25,000.....	20,000	15,000	12,500	10,000

The co-insurance percentages do not apply to the risks of A and C because the value of the merchandise greatly exceeds that which may be stolen in a single burglary. In these cases, therefore, the co-insurance limits apply and as the co-insurance percentages vary, these limits are also varied in order to avoid extreme discrepancies. The percentages are applicable to the risks of B and D except that the co-insurance limit applies to B's risk in territory III.

Rates for this coverage, which is written only for a term of one year and in an amount of not less than \$1,000, depend upon several elements which will be enumerated and explained.

1. *Trade Classification.* Originally rates were quoted for different kinds of merchandise so that a given stock had to be separated into several parts, each of which took its own classification. With the introduction of co-insurance this plan was no longer feasible because separate co-insurance requirements might apply to different parts of the stock and thus complicate the underwriting of the business and the adjustment of losses. Therefore, the plan of describing the entire stock of the assured was adopted and classifications were established which must be applied to all of the merchandise of the assured. There are numerous descriptive classifications of this character but each is assigned to one of four "trade groups" on the basis of relative hazard. Some illustrations follow:

Classification	Trade Group	Co-insurance Limit
Agricultural Implements...	1	\$1,000
Copper and Copper Goods..	1	5,000
Dental Supplies.....	2	10,000
Hardware (wholesale and retail).....	2	5,000
Oils (essential).....	3	15,000
Neckwear.....	3	Varies from \$10,000 to \$20,000 in accordance with rate territory.
Shirts (silk).....	4	Varies from \$20,000 to \$40,000 in accordance with rate territory.
Furs and Pelts, including articles made entirely or principally thereof.....	4	Varies from \$20,000 to \$40,000 in accordance with rate territory.

As a general rule these classifications can be applied to the entire stock without difficulty or inequity to the assured. But the provision that the most hazardous merchandise shall govern the classification creates a serious problem in some cases and gives rise to an underwriting principle known as "divided insurance," which may be applied only where, without such a rule, a limited amount of class 4 property (highest hazard) would require the use of the highest rate on the entire stock of merchandise. Thus, it is not impossible to find a risk where the stock consists of \$95,000 worth of cotton goods and \$5,000 worth of silks. Cotton goods are in the lowest hazard class but the rate for this class cannot be used unless 100% of the merchandise is in class 1. In this case, therefore, the presence of \$5,000 worth of silks forces the application of the highest rate and the highest co-insurance limits to the entire stock. This inequity is corrected by permission to treat this risk on the following basis:

a. The cotton stock may be insured at class 1 rates and the territorial co-insurance percentages applied subject to a uniform requirement for all territories that the amount of insurance on this property shall not be less than \$10,000. The amount of insurance on the property must be four times the amount of insurance on class 4 property.

b. The silk stock to which class 4 rates apply must be insured at 100% of its value to secure complete coverage.

Thus, in this case it is necessary for the assured to carry at least \$20,000 of coverage under section (a) at group 1 rates and \$5,000 of coverage under section (b) at group 4 rates.

2. *Territory in which the risk is located.* The territorial divisions, of which there are four, are established upon the basis of experience. Each comprises states or sections of states which are shown to represent uniform hazards. Thus, the state of New York is divided into four parts, which are classified as follows:

Territory I—

New York, Bronx, Richmond, Kings, Queens, Nassau, Suffolk, Rochester and Westchester Counties.

Territory II—

Erie, Niagara, Albany and Onandaga Counties.

Territory III—

Broome, Chemung, Monroe, Rensselaer and Oneida Counties.

Territory IV—

Balance of state.

Counties are used rather than cities because the hazard cannot be attached to cities but must be measured for the surrounding territory as well. Rates vary from the highest for territory I to the lowest for territory IV.

3. *Amount of Insurance.* Rates are quoted per \$1,000 of coverage and are lower for each successive \$5,000 of protection until \$20,000 is reached, after which the variation ceases. The reason for this variation is the same as that for the similar variation in residence rates; the hazard of total loss reduces with an increase in the amount of coverage. Units of \$5,000 are used because of the greater value of insured property which is exposed in the average risk. Thus, the rates for trade group 4 in territories I and IV are as follows:

Amount of Insurance		Annual Rates per \$1000 of Coverage—	
		Territory I	Territory IV
1st	\$5,000	\$50.00	\$35.00
2nd	5,000	45.00	31.50
3rd	5,000	40.00	28.00
4th	5,000	35.00	24.50
over	20,000	12.50	9.00

4. *Protective Devices.* The same principle is followed here as in the case of Bank Burglary Insurance, although the method of treatment is somewhat different. Alarm systems are classified in two ways—central station alarms and gong alarms. Each group is subject to classification by the Underwriters Labora-

tories, the central station systems into classes A and B and the gong systems into classes A, B and C. There are three grades of installation for central station systems and two for gong systems. The discount depends upon the classification, upon the grade of installation and also on the location of the premises, whether on the grade floor or above the grade floor. Thus, a completely installed "B" central station system protecting a risk on the grade floor is entitled to a discount of 50%. If the same installation protects a risk above the grade floor the discount is 60%. For a completely installed "B" gong system the corresponding discounts are 25% and 30% respectively. The greater discount for a central station system recognizes the better protection afforded by this type of alarm. The greater discount for installations above the grade floor recognizes the fact that the protection of such premises is more valuable to the insurance companies in defeating burglaries. The alarm discount is not allowed unless the assured has a certificate from the Underwriters Laboratories. There are also discounts for watchmen which are identical with those described in connection with Bank Burglary Insurance.

An illustration will demonstrate the actual calculation of the premium for an individual risk:

CALCULATION OF ANNUAL PREMIUM FOR A MERCANTILE OPEN STOCK BURGLARY RISK

Business of assured—Manufacturer of fur garments (Trade Group 4)

Location of risk—New York City (Territory I)

Location of premises—Entire third floor in loft building at
 _____ 23rd St., N. Y. C.

Protection of premises—"A" central station alarm system completely installed.

Value of stock—\$100,000

Amount of insurance—\$40,000 (The co-insurance limit applies)

CALCULATION OF PREMIUM

1st \$5,000 (\$50 per \$1,000).....	\$250
2nd \$5,000 (\$45 per \$1,000).....	225
3rd \$5,000 (\$40 per \$1,000).....	200
4th \$5,000 (\$35 per \$1,000).....	175
\$20,000 (\$12.50 per \$1,000).....	250
Total manual premium.....	\$1,100
Less 70% discount for alarm protection.....	770
Net premium.....	\$330

In this form of insurance it is not unusual to find risks which maintain establishments at many locations throughout the country. This is particularly true of certain classes of risks which operate on the "chain-store" principle, such as five-and-ten-cent stores, clothing stores, drug stores, cigar stores and grocery stores. A special method of treatment is provided where the insurance applies to one hundred or more locations. Risks of this character are subject to merit rating, the plan used being similar in a general way to the experience rating plan used in Workmen's Compensation Insurance.

MERCANTILE SAFE BURGLARY INSURANCE

The Mercantile Safe Burglary policy is intended to apply to property (money, securities and merchandise) located in safes or vaults which are duly closed and locked by at least one combination or time lock. The coverage is designed to meet the needs of those who wish particularly to protect property in safes. Thus, an investment or loan broker may not require coverage on his entire stock but may desire to protect the property in his safe. It also meets peculiar needs, such as those of a cloak and suit merchant whose Mercantile Open Stock policy does not cover loss of money and securities, or a jeweler whose Mercantile Open Stock policy covers jewelry only to a certain value and who can secure additional coverage on articles of great value at a lower rate under a mercantile safe policy than he would be required to pay for an extension of his open stock coverage.

The coverage is similar to that granted under Bank Burglary policies and for this reason the treatment is similar: entry into the place of safe-keeping must be effected in the same manner, the coverage applies while the safe or vault is located on the assured's premises or elsewhere after removal therefrom by burglars, property damage as well as property loss is covered except where such damage is caused by fire,* and the definitions of "money" and "securities" are substantially the same. It should be noted, however, that "merchandise" is covered here whereas only money and securities are covered by the Bank Burglary policy.

*The Mercantile Safe policy excludes loss to plate glass and lettering or ornamentation thereon. In this respect it does not follow the bank burglary policy but is similar to the companion mercantile open stock policy.

The insured property may be owned by the assured, held in trust by him or as collateral for indebtedness, or held under conditions which render him liable to the owner for loss or damage. In connection with the latter class of property the company agrees to defend the assured in case suit is brought against him following a burglary.

There are several exclusions. The company does not accept liability for loss of or damage to any property owned by the United States Government or held by the assured as postmaster. It is not liable if the assured, any associate in interest, a watchman or office or clerical employee of the assured is implicated in the burglary. Books and records must be maintained from which the value of a loss may be determined; otherwise there is no liability on the part of the company. If a burglary should occur following the occurrence of a fire or explosion which is not caused by burglars, the coverage does not apply, although these hazards may be covered upon payment of an additional premium. Neither does the policy cover loss or damage contributed to by invasion, insurrection, war, riot, strike by the assured's employees, water, or the action of the elements, although the riot, strike and water or action of the elements hazards may be brought within the scope of the insurance by the payment of an additional premium. Finally, there is no liability where the loss is effected by opening the door of any vault, safe or chest by the use of a key or by the manipulation of any lock. This is an important exclusion which is designed to remove a considerable moral hazard. The policy specifies that burglars must enter the vault or safe after it has been locked. Entry must be forcible and if the safe is within a vault both must be burglarized. If the policy were not specific on this point, there would be no means of proving that the safe or vault had been properly locked or that it had not been unlocked by a dishonest employee who knew the combination. It would also be easy for a dishonest assured to remove property from the safe or vault and claim indemnity. The fact that he must hire someone to break open the safe or vault in the manner specified is a reasonable deterrent, although there are cases on record where this very method of defrauding the insurance company has been employed.

Rates for this coverage are quoted per \$100 of coverage and depend upon various factors.

1. *Safe and Vault Construction.* There are five classifications for this purpose designated by the letters A-E. These differ from the classifications used for Bank Burglary insurance because of the natural difference in equipment which is found in the two classes of risks. For example, class A covers a "Fire-proof safe or cabinet equipped with a combination lock and having body and door less than $\frac{1}{2}$ inch in thickness," whereas class C applies to a "semi-burglar proof safe or chest having steel walls and a steel door at least 1 inch in thickness, equipped with a combination lock." The equipment in mercantile establishments is more likely to be fire-proof than burglar proof and thus, while offering resistance to fire, to offer little or no resistance to burglars. The use of classifications enables the insurance companies to recognize this fact and also by offering greater discounts for some types than for others to stimulate the manufacture and use of equipment which resists both fire and attack by burglars.

2. *Territorial Divisions.* The four territorial divisions used for this coverage serve the same purpose as those established for other lines. They are determined in the same manner but since they are based upon the experience of this particular class of business they are not the same as divisions used elsewhere. For example, Wyandotte County, Kansas, is in the highest rated territory (I) and New York County is in the lowest rated territory (IV).

3. *Kind of Property.* Separate rates are quoted for (1) Merchandise, money and securities (2) Securities only, and (3) Merchandise only.

4. *Business of Assured.* There is some variation in hazard depending upon the business of the assured. For example, the hazard is not the same in a jewelry store, a theatre, a garage, a gasoline-filling station and a grocery store. This variation is recognized by two classifications which are designed to single out the extremely hazardous risks for special treatment.

5. *Population of the City or Town in which the Risk is located.* Variation of rates by population rests upon the same grounds as in the case of Bank Burglary rates, although the table of discounts is not the same. No discount is allowed where the population is less than 2,500; for populations between 2,500 and

7,499 the discount is 5% and from this point it increases until a population of 150,000 or over is reached, where it is $33\frac{1}{3}\%$.

6. *Protective Devices.* There are discounts for watchmen and alarms which follow those for Mercantile Open Stock insurance (except that the grade floor and above grade floor distinction as to alarm systems does not apply), and also a discount for special locking devices on the doors of safes and vaults.

7. *Division of Insurance.* Finally, there are credits for division of insurance which are identical with those used in rating Bank Burglary risks.

An illustration will demonstrate the method of determining the premium for an individual risk.

CALCULATION OF ANNUAL PREMIUM FOR MERCANTILE SAFE BURGLARY INSURANCE

\$100,000 of coverage on merchandise, money and securities located in two class C safes both equipped with an approved locking device—(liability equally distributed in advance). The safes are maintained on the premises described in the example on page 83 and are guarded by similar protective devices.

CALCULATION OF PREMIUM

Number of hundreds of insurance multiplied by table rate (\$1.32)	\$1320
Less Population discount ($33\frac{1}{3}\%$).....	880
Less discount for watchman (0).....	880
Less discount for burglar alarm (70%).....	'264
Less discount for special locking device (10%).....	237.60
Less discount for division of insurance (20%)—Net Premium.....	190.08

This is the annual premium: if policies are issued for three years special discounts are allowed for various methods of collecting the three years' premiums. It is also provided that the "chain-store" risk may be experience-rated if it involves safes at one hundred or more locations.

PAYMASTER, MESSENGER AND OFFICE OR STORE ROBBERY INSURANCE

(1) Paymaster (2) Messenger and (3) Office or Store Robbery insurance are in reality three separate and distinct forms of coverage, but they may be discussed together as there are com-

mon principles underlying them and the distinctions which have been established refer particularly to the application of these principles to special problems and to the methods employed in classifying and rating individual risks.

POLICY PROVISIONS

The definition of "robbery" has been given on page 39. "Property" includes money, securities and merchandise, thus creating a distinction between this coverage and that of the Mercantile Open Stock policy which does not apply to either money or securities. The definitions of "money" and "securities" are similar to those used in the Bank Robbery policy. "Merchandise" includes "articles of gold and silverware, watches, jewelry and precious stones, and such other articles as are commonly carried in the line of business conducted by the assured." In addition to these definitions the definitions of "custodian" and "guard," are peculiar to this coverage.

A custodian is a person in whose possession or care the property must be at the time of the robbery. He may be "(1) the assured, if an individual; (2) a member of the firm, if the assured is a co-partnership; (3) any officer of the assured, if the assured is a corporation; (4) any person not less than seventeen nor more than sixty-five years of age, who is in the regular employ of the assured and duly authorized by him to act as paymaster, manager, cashier, clerk or sales person, and while so acting to have the care and custody of property . . ." insured under the policy. Arrangements may be made in specific instances to modify the age requirement under clause (4). It is inserted in its present form so that the insurance company will not unintentionally and without warning assume the abnormal risk of loss arising out of the fact that the custodian of insured property is either too young or too old to give it reasonable protection. The definition further specifically excludes watchmen and porters. The reason for this restriction is that the companies do not care to assume the moral hazard which would exist in these cases. For example, criminals may gain access to the insured premises by deception and then "hold up" the watchman or porter. Such a crime would not be covered by the Mercantile Open Stock Burglary policy which requires evidence of forcible entry into the premises,

and it is not covered either by the robbery policy. There is a demand for this coverage but the companies have so far resisted it because it is almost impossible in these cases to ascertain whether there was collusion between the employee and the criminal. The policy is specific on this point although the courts have held that watchmen and porters cannot be classified as "custodians," thus making it doubly certain that there will be no misunderstanding.

A "guard" is any male person between the ages of seventeen and sixty-five who accompanies the custodian by the direction of the assured. The age requirement is inserted for obvious common-sense reasons, although it is astonishing how frequently persons of less than seventeen or more than sixty-five years of age are employed to guard property. This requirement may be changed by endorsement in individual cases where the company is convinced that adequate protection is afforded by persons either younger than seventeen or older than sixty-five years of age. It should be noted that the guard need not be in the employ of the assured. He may be engaged for this specific purpose as, for example, where a police officer or a private detective is detailed to accompany the custodian. It is provided, however, that the driver of a conveyance must be on the payroll of the assured to be considered a guard. Drivers of public conveyances, therefore, may not be classified as guards. This bars taxi-drivers and others who may accompany the custodian but who are not equipped to protect the property, and are not expected to do so.

The terms "custodian" and "guard" are clearly defined because of their use in connection with important warranties and also because there is no liability on the part of the company if it can be shown that custodians or guards were implicated in the robbery. If a taxi-driver should be found to have been in collusion with criminals committing a robbery, or if a group of laborers working for the assured on a contracting job should commit a robbery, the company would be liable because in these cases the guilty parties are neither custodians nor guards and the hazard is one which it is intended that the policy should cover.

There are eight limitations upon the company's liability, many of which are the same as limitations in other policy forms. The

insured property must be owned by the assured or held by him in trust, on commission, as collateral for indebtedness or otherwise under conditions rendering him liable to the owner for loss or damage;* where securities are lost the assured must use due diligence in endeavoring to prevent their negotiation or payment; the market value of insured property at the time of loss is the limit of the company's liability; the assured must maintain books and accounts which can be used to determine the extent of a loss, else the company is not liable; losses caused or contributed to by riot, invasion, insurrection, war or strike,† are not covered, although the riot and strike hazards may be brought within the coverage upon payment of an additional premium. In addition, the policy provides that the robbery must be established by direct and affirmative evidence, that there is no liability unless the assured has taken all reasonable precautions to safeguard the property, and that there must be no criminal implication, as a principal or an accessory, of (1) the assured (2) any associate in interest (3) a custodian or any other employee of the assured directly in charge of the insured property or (4) any guard accompanying a custodian. The third clause, it will be noted, does not bar claims where one of the general run of employees may be implicated. This is a hazard which must be covered as it is unreasonable to penalize the assured unless the crime may be attributed, either directly or indirectly, to one of his employees whose particular business it was to guard the insured property.

Other conditions similar to conditions explained in connection with bank robbery policies are (1) provision for automatic reinstatement of the full amount of the policy in the event of loss and (2) provision for automatic reduction of the amount of the policy where the assured is unable, because of an unforeseen contingency, beyond his control, to maintain protective conditions as he warranted to do and, therefore, causes the hazard to increase.

*Policies may be endorsed to cover money, Liberty Bonds or other securities left with the assured for safe-keeping, provided the assured has a record of such property which may be used to prove a loss after a robbery has occurred.

†Until recently there were also exclusions covering loss by water, by action of the elements or by fire, but these have been removed.

The insuring clauses of the three robbery forms must be described separately because of individual characteristics which are distinctive.

A. Paymaster Robbery Insurance. Paymaster Robbery Insurance is intended for concerns which pay their employees' wages in cash. In such cases amounts of money must be obtained from the bank at regular intervals. Not infrequently this money must be transported a considerable distance and sometimes, as in the case of contractors, it must be delivered to several different locations.

The policy covers two separate hazards:

1. *Loss of or damage to property intended solely for the payroll of the assured.* This is the primary coverage which applies while the custodian is engaged in any of his regular duties in connection with such payroll. It normally covers outside the assured's premises any place in the United States or Canada during the hours from 7 a. m. to 7 p. m., although, upon payment of an additional premium, the hours of "outside" coverage may be extended. In addition, it covers inside the assured's premises at any time (day or night) that the custodian may be employed at his tasks in connection with the payroll. This provision recognizes the necessity for coverage of payroll from the time it is taken from the bank until it is distributed into pay envelopes and finally paid to the employees. It may come from the bank at 3 p. m. on the day preceding pay day, the work of preparing it for distribution may go forward during the night on the assured's premises and actual payment to employees may not be made until the following day when pay envelopes are distributed at one or several locations. Loss of or damage to the wallet, bag, satchel, safe or chest in which the payroll is contained is covered as well as damage to furniture, fixtures and other property on the premises (except plate glass, and lettering or ornamentation thereon).

2. *Loss of or damage to other property not intended solely for the payroll of the assured.* This coverage is restricted in amount to 10% of the insurance on payroll and applies only outside the assured's premises anywhere within the United States or Canada between the hours of 7 a. m. and 7 p. m., although an extension of the hours of coverage may be obtained upon payment of an

additional premium. The coverage also extends to the wallet, bag, satchel, safe or chest in which the property is contained.

An assured in purchasing this form of insurance is required to estimate the average amount of payroll which will be exposed at any one time and to cover this by a corresponding amount of insurance, but the policy allows some fluctuation to meet unexpected situations where the amount of payroll may exceed the amount of coverage. Thus, if the policy covers at least one custodian and the amount of insurance on that custodian is at least \$50,000, the coverage per custodian may be automatically increased 25%, provided a record is kept so that an additional pro-rata premium may be calculated for this coverage and collected at the close of the policy term.

B. Outside Messenger Robbery Insurance. Outside Messenger Robbery Insurance is intended for the protection of business houses such as investment houses, banks, jewelry stores and others which are required to send property of value outside of their premises for delivery or for other reasons. It covers only one hazard, the loss of or damage to money, securities or merchandise and to the wallet, bag, satchel, safe or chest in which such property is contained, while the custodian is away from the assured's premises* but within the United States or the Dominion of Canada. The standard coverage applies during the hours of 7 a. m. to 7 p. m. but the time may be extended upon payment of an additional premium. Robbery coverage which applies outside the assured's premises has not always been limited to the United States and Canada. Prior to 1922 it applied to all sections of the world but about that time several robberies in Europe which were covered by robbery policies issued in this country forcibly directed the attention of underwriters to the situation and the limitation of coverage to the United States and Canada resulted. The principal reason for the territorial limitation is the difficulty of adjusting losses which occur abroad.

C. Interior Office or Store Robbery Insurance. Interior office or Store Robbery Insurance is designed to meet the needs of

*The Standard Robbery Policy may be extended to cover the funds of the assured, while contained within the home of the custodian under certain conditions. This provision would apply to either the Paymaster or Messenger coverage.

merchants and others who have exposed, within their premises, valuable property which may attract criminals during the time the premises are open for business. It covers loss of or damage to money, securities and merchandise and to furniture, fixtures and other property (except plate glass, and lettering or ornamentation thereon) on the assured's premises during the hours beginning at 7 a. m. and ending at 12 o'clock midnight, although the latter provision is subject to modification on payment of additional premium.

There may be a special extension of this coverage by endorsement to cover loss occasioned by the felonious abstraction of property from show windows after the glass has been broken from outside the premises. This coverage is effective during the hours when the premises are open for business and is intended to supplement the show window coverage granted in Mercantile Open Stock policies which applies only while the premises are closed for business.

It will be noted that the requirements of some concerns can only be met by combinations of these three coverages if complete protection against the robbery hazard is desired. An investment house must have both Outside Messenger coverage and Interior Office coverage if it is to be fully protected; the one covering property outside the premises and the other, property within the premises, it requires a combination of both to afford the assured complete protection.

RATES

In explaining rates it is again necessary to deal with the coverages individually because of differences in the methods of treatment, although they fall in two groups, one containing Paymaster and Messenger Robbery Insurance where the methods of rating are similar and the other containing Interior Office or Store Robbery Insurance, which is rated on a different basis. In all cases policies may be issued for terms of one or three years. In the discussion it is assumed that the rates are for coverage of one year only.

Paymaster and Messenger Robbery Insurance Rates. Since rates for these coverages depend upon several factors, the pre-

mium for the individual risk is built up as in other cases by combining those factors which apply to the conditions of the risk. The following items are important:

1. *Territory in which the risk is located.* There are four territorial divisions based upon the experience of risks of this class. These are designed to take into consideration the varying degrees of exposure to robbery which are found in different localities. For example, Wyandotte County, Kansas, is in the first territory where the hazard is highest, while New York County is in the fourth territory where the hazard is lowest and where the rates are only one-half of those for the highest hazard.

2. *Number of guards accompanying the custodian.* It is obvious that the greater the number of guards the less the likelihood of attack by robbers. The annual rate per thousand dollars of coverage, therefore, is reduced as the number of guards increases. There are six gradations which may be illustrated by quoting the rates for territories I and IV:

Custodian Accompanied by	Annual Rates per Thousand	
	Territory I	Territory IV
No guard.....	\$15.00	\$7.50
One guard.....	12.00	6.00
Two guards.....	9.60	4.80
Three guards.....	7.60	3.80
Four guards.....	6.84	3.42
Five or more guards.....	6.16	3.08

The rates do not vary with the amount of coverage because in the case of a hold-up the entire property will probably be taken. There is, therefore, no distinction in hazard between successive thousands of coverage as in some other cases which have been considered.

3. *Protective Measures Employed.* The rates quoted above are manual rates. They are subject to discount for the maintenance of conditions which tend to reduce the hazard. There are two items of this character:

a. A discount of 10% is allowed if the assured provides a private conveyance for the exclusive use of the custodian and

his guards during the entire trip. If this conveyance is an armored car with an enclosed body constructed of bullet-proof steel, and with doors securely locked, an additional discount of 10% may be allowed.

b. A discount of 10% is allowed if the insured funds are carried (1) in a locked messenger safe or chest; or (2) in a satchel or wallet lined with steel or wire mesh and attached by a chain, steel or wire strap to the person of the custodian or to the vehicle in which the funds are conveyed.

4. *Kind of Property Covered.* Further discount of 25%, if the coverage is limited to securities only, is provided.

An example will demonstrate the method employed in calculating a premium for this coverage:

**CALCULATION OF ANNUAL PREMIUM FOR PAYMASTER OR MESSENGER
ROBBERY INSURANCE**

Amount of Insurance.....	\$100,000.00
Five guards employed to accompany custodian	
Risk located in New York City	
Custodian transported in armored car	
Property transported in approved satchel	

CALCULATION OF PREMIUM

Number of thousands of insurance multiplied by table rate (\$3.08).....	308.00
Less discount for private conveyance (10%).....	277.20
Less discount for armored car (10%).....	249.48
Less discount for satchel (10%)—Net Premium....	224.53

If securities only were covered this premium would be subject to a further discount of 25%.

Interior Office and Store Robbery Insurance Rates. The factors which are taken into consideration in rating a risk for this coverage are as follows:

1. *Territory in which the Risk is Located.* Since the robbery hazard is common to this and to the preceding coverages, the same set of territorial classifications is used in both cases.

2. *Number of Persons on Duty within Premises.* There are two classifications of risks, one where a single person (the custodian) is on duty, and the other where the custodian and at

least one other employee are on duty. It is obvious that the exposure to robbery is reduced where there are several persons on the premises at all times and the two classifications are designed to reflect this condition in the rates for individual risks.

3. *Business of the Assured.* Risks are classified in three groups by type of business in order to single out for special consideration certain types of risks which present extraordinary hazards. Jewelry and drug stores are in the highest rated group; garages, gasoline and automobile service stations, theatres and amusement parks are in the next group, and all other risks are in the third and lowest rated group. Manual or table rates are quoted per thousand dollars of coverage and recognize the three factors so far enumerated, as an illustration will demonstrate:

Number of Persons on Duty	Annual Rates per Thousand					
	Territory I			Territory IV		
	Trade Class			Trade Class		
	1	2	3	1	2	3
Custodian only.....	\$10.00	20.00	40.00	5.00	10.00	20.00
Custodian and at least one other employee.....	8.00	15.00	30.00	4.00	7.50	15.00

4. *Protective Measures Employed.* Discounts are allowed from manual rates as follows:

a. If watchmen or guards with no other duties are on duty at the door of or inside the premises at all times while they are open for business, a discount of 10% per watchman or guard (with a limit for three watchmen or guards) may be allowed. Store detectives may not be classified as watchmen or guards.

b. If a foot or hand push button alarm system connecting with a central station or with a gong either inside or outside the premises is maintained, a discount of 10% may be allowed.

5. *Kind of Property Covered.* A discount of 25% is provided where securities only are covered. A discount of 50% is also provided where the insurance is limited to coverage of payroll funds.

An illustration will demonstrate the method of calculating the premium for this coverage:

CALCULATION OF ANNUAL PREMIUM FOR INTERIOR OFFICE OR STORE
ROBBERY INSURANCE

Amount of insurance.....	\$100,000.00
Custodian and at least one other employee always on duty.	
Three guards always on duty.	
Daylight alarm system maintained.	
Risk located in New York City and engaged in the retail jewelry business.	

CALCULATION OF PREMIUM

Number of thousands of insurance multiplied by table rate (\$20)	2,000.00
Less discount for first guard (10%).....	1,800.00
Less discount for second guard (10%).....	1,620.00
Less discount for third guard (10%).....	1,458.00
Less discount for daylight alarm system (10%)— Net Premium.....	1,312.20

If the risk rated for Interior Robbery coverage were also covered against robbery of messengers in the amount of \$100,000 and the conditions were as enumerated in the example on page 95, the premium would be the sum of the two premiums or \$1,536.73. In such a policy, although the aggregate amount of insurance would be stated as \$200,000, the distinction between the inside and outside coverages would be scrupulously observed and \$100,000 would be the limit of liability for either an outside or an inside robbery.

All three of the robbery coverages are subject to special rating where several custodians or several locations (not exceeding 99 in either case) are covered. This special rating is designed to reduce the total premium in these cases below the sum of the individual premiums which would be obtained if each separate unit of the risk were rated by itself. Discounts are allowed for successive additional custodians or locations. If the risk comprises more than 99 custodians or locations it is subject to experience rating.

CONCLUSION

The authors undertook the preparation of this paper with the idea of writing a comprehensive treatise on this branch of casualty insurance. It was discovered, however, that nothing beyond a description of coverages and rating methods could be attempted.

There are many other subjects which might be discussed such, for example, as rate making, the treatment of the moral hazard by the underwriting, inspection and claim departments of the companies, the avoidance of the ever present tendency toward adverse selection, and plans for the equipment of individual risks with appropriate preventive devices. Space will not permit consideration of these problems and they are merely mentioned as matters which should be investigated by the student if he wishes to proceed further with his study of this form of insurance.

Burglary, Theft and Robbery Insurance has passed the experimental stage of its development. Nevertheless many problems remain to be solved and the next period will be marked by the selection of the most efficient underwriting principles, the simplification and refinement of procedure, and the introduction, on a more extensive scale, of statistical methods. The possibilities of expansion are extraordinary because there is probably no form of insurance which has been sold to so few of those who should have its protection.

THE NEEDS AND PROSPECTS OF AN EDUCATIONAL
PROGRAM IN INSURANCE LAW

BY

RICHARD FONDILLER

When students are preparing for the examinations of this Society and consult the examination requirements, they find that a knowledge of insurance law, including the more important statutes of the United States and Canada relative to casualty insurance is required under the syllabus for Part II of the Associateship examination. Thereupon they refer to the Recommendations for Study which have been recently issued by the Society, in order to determine the scope of the readings which are suggested by the Educational Committee in preparation for this topic. The list of these readings is so formidable as to suggest that a very large amount of time will be required to meet the requirements of this item of the syllabus.

Analyzing rather more closely, however, the nature of the readings suggested, we find that the preparatory texts recommended include some volumes which are purely academic and others which were prepared primarily for students in law schools. The first text book mentioned in the syllabus was published over twenty years ago, the next fifteen years ago and the last eleven years ago. It is quite apparent, as to those texts that deal specially with insurance law, that they are more or less obsolete due to the rapidly changing nature of insurance law and of casualty insurance law in particular. As respects current decisions to which the student is referred these are, as their name implies, recent declarations of the courts with respect to litigations currently determined. The texts suggested for workmen's compensation insurance law have both been published within the last ten years and are fairly recent, but each of these is over a thousand pages and it is rather difficult for the student to determine for himself the most important portions of the text. Furthermore, workmen's compensation is only one out of the thirteen casualty lines mentioned in the syllabus; the student is expected to be familiar with the policy forms and underwriting practice of all these thirteen lines.

From the above brief outline of the large extent of the reading which the student is expected to cover, it is evident that no texts exist which accurately meet the needs of our students. Turning to the two life actuarial societies, we find that almost a similar situation exists, except that the problem there is narrowed down to life, accident and disability insurance. In the Recommendations of the Actuarial Society of America the statement is made that since there is no good text book of reasonable size, the work of the student in preparing upon life insurance law is rendered more difficult. The American Institute of Actuaries recommends most of the text books given in the Recommendations of the Actuarial Society of America.

In the leading law schools, the subject of insurance is taught by assigning a case book which consists of a compilation of leading cases selected to illustrate the principles and development of the law. These case books generally attempt to cover the entire field of insurance and as such do not meet the requirements for special preparation in any one of the insurance lines. The case books refer the student to citations of a large number of additional cases which he is expected to read. Case books are published at infrequent intervals and presently become obsolete through reversal of important decisions.

A review of the situation leads one to conclude that if a student in this Society is to be well grounded in the subject of casualty insurance law, he should have available a volume that is both a text book and a case book. Such a volume will follow the modern methods of teaching law in university law schools, while also preserving the text method of presentation. The course should consist of the following:

1. Some recent standard text on the elements of law should be selected as the basic text book.
2. The Society should prepare a text entitled "Casualty Insurance Law" with a section dealing with each casualty line. Each section should comprise
 - (a) The policy form and standard riders
 - (b) A digest of the decisions as respects the various policy provisions
 - (c) The opinions in full on a few of the leading cases.

The volume should be sub-divided somewhat as follows:

Part I—Relation between insurance companies and the public.

Insurance law of the various states.

- (a) Digest of the more important sections of the insurance laws of several of the principal states.
- (b) Selected cases and text covering organization and licensing of companies, reserve requirements, state taxation, Federal income tax and reinsurance upon liquidation.

Part II—Relation between insurance companies and their policyholders: Selected cases and text arising out of litigation as to the coverage and other underwriting questions raised, particularly in the settlement of claims.

Part III—Relation between insurance companies and their agents

- (a) Specimen contracts for general agents and sub-agents in the various casualty lines.
- (b) Cases decided between companies and their agents.

In general, only cases should be included that have been decided in the United States Supreme Court and in the courts of last resort in the various states, during the last fifteen years.

In addition to such a volume the student would do well to read the legal notes published by the actuarial societies, the digests of insurance publishing houses and of national organizations which give abstracts of current decisions, in order to keep in touch with the trend of current decisions.

There appears to be no doubt of the great need of such a volume which, if it could be prepared under the auspices of this Society, would indeed be a contribution of great value not merely to students and members of this Society, but to others.

STATISTICS IN THE SERVICE OF INSURANCE
ADMINISTRATION

BY EDWIN W. KOPF

THE EDUCATIONAL PROGRAM OF THE SOCIETY

When this Society was founded more than ten years ago, one of the aims of the founders was to provide facilities for the interchange of the views and experience of three groups of insurance technicians whose interests are more or less intimately related. The Society's meetings and publications, and the work of its Educational Committees, were designed primarily, however, to promote professional education for the growing group of actuaries in the companies conducting principally casualty and miscellaneous lines of insurance. Most of these technicians had grown up in these lines of insurance and had not had an opportunity for training in the actuarial and allied insurance sciences similar to that extended to men in the life insurance business.

Actuary, Statistician and Accountant

There are essentially different technical problems in the casualty and miscellaneous lines as compared with those in life insurance. In view of the increased need for the services of the accountant and of the statistician in casualty lines, it was apparently the sense of the founders of the Society that provision should be made also for the promotion of the technical education of insurance accountants and of statisticians and for parity of relationship with the actuaries in this Society.

And so, we found in our initial membership a group of actuaries, statisticians and accountants, from the life and casualty companies, and from governmental offices and the universities. It is the purpose of this paper to define the scope of the statistician's work in insurance service, to indicate the nature of statistical training for the accountant, actuary and administrative statistician, and to suggest what progress can be made in the provision of facilities for statistical education.

It is reasonable to assume that we shall continue to have three types of technical specialists in the insurance business, *i. e.*,

actuaries, accountants and administrative statisticians, because it is becoming increasingly difficult for any one man to develop the required competence in each of these fields. Persons who are expert actuaries, expert administrative statisticians or expert accountants in insurance service will need to cooperate more closely in the future than they have in the past, but neither one can encroach upon the field of the other. It is a fortunate circumstance that the founders of the Society envisioned this development and provided a facility for harmonious relationship and cooperation for these three groups. With this in view, your Educational Committees, in preparing the recommendations to candidates for admission to our Society suggested that the Society encourage the preparation of comprehensive texts in insurance statistics*, insurance accounting*, in rate-making and valuation technique, insurance law* and insurance economics, in order that our students may receive proper preparation for the examinations of the Society. Each text will be prepared under the supervision of a special sub-committee, the Chairman of which is a member of our Educational Committee. Mr. George D. Moore is in charge of the special committee which is to advise Mr. R. S. Hull in the preparation of the casualty insurance accounting text. These matters have been left with the Educational Committee for further development, and no decisive action will be taken without the approval of the Council and membership. It should be recalled that your present Educational Committee is carrying out simply the recommendations of past committees under the leadership of Messrs. Moore, Blanchard, Mowbray and Cogswell.

SCOPE OF ADMINISTRATIVE STATISTICS; THE STATISTICIAN IN INSURANCE SERVICE

The experience of the past ten years has shown conclusively that the administrative statistician has his rightful place as counselor, historian, critic and trail-blazer of the business.

**In preparation:* Insurance administration and statistics (E. W. Kopf); casualty insurance accounting (R. S. Hull); insurance law (Byron Clayton and a casualty insurance lawyer to be selected) under the auspices of the Committee. Other texts are being planned (insurance economics, casualty ratemaking, etc.)

Functionally, his work is a part of general insurance administration. He serves most efficiently when he acts as the intelligence officer for the executives, and not when he is employed simply in the collection of routine loss experience and financial records, or assists in the preparation of the ordinary books of account. The "handy-man" or tabulating-clerk view of the situation is wholly wrong.

The insurance statistician is, or should be, entrusted with that branch of modern administrative practice known as "statistical control," the competent pursuit of which is necessary when any business enterprise assumes the colossal proportions into which the different branches of the insurance business have grown during the past ten years. Take life insurance as an instance. In 1914, there were in force in the United States twenty-two billion dollars of Ordinary and Industrial life insurance; at the end of 1923, the amount was close to fifty-seven billions. This vast increase in coverage over ten years has been accompanied by an unparalleled expansion in the numbers of head office and field personnel and has increased beyond former expectation the responsibilities of executives. These responsibilities, which also imply deep obligation for wise, economical management, can be met only when administrative decisions are made on the basis of responsible recommendations and conclusions based upon accurately prepared and analyzed statistical facts. The facts of the insurance executive relate to masses or aggregates of persons, things or events; these are *statistical* facts.

There has been a similarly stupendous growth in the casualty and miscellaneous lines. We do not know what the future holds, but executives who are gifted with the prophetic faculty feel that insurance service has just hit its stride and that steady progress will be made within the next few decades both in the volume of coverage, in the types of risks insured and in refinements of service for the assured and general public. Guidance and constructive criticism of these ventures should be entrusted to experienced, seasoned insurance logicians. So, the pioneer work of the few men who have been privileged to specialize in statistics as an adjunct to insurance administration will be followed by the work of others now in training, and these few words as to the outlook for the administrative statistician in insurance work may serve to initiate educational effort.

THE IMPORTANT BRANCHES OF THEORETICAL AND APPLIED
STATISTICS; TYPES OF STATISTICAL ACTIVITY IN THE SERVICE
OF INSURANCE

We have suggested that the administrative statistician needs to be thoroughly equipped with full technical competence in the tested principles, methods or arts, and subject-matter of statistics and that instruction in statistics is desirable for the actuary and the accountant. Let us make this clear by defining the two general types of statistical *method* or procedure and the several levels of statistical *competency*.

Descriptive Statistics

Historically, we have the first type, or *descriptive statistics*, which is the collection of the raw materials of the description of groups of persons, things or events. These methods include the principles of drafting inquiry forms or schedules of original record, such as questionnaires and routine statistical records of individual events, sometimes routine office records; the editing, inspection or criticism of such primary records; the classification of individuals under the rubrics or titles of conventional statistical lists; the hand or machine tallying or tabulation of classified data; the drafting of schedules for the marshalling or tabulation of classified materials; the arts of practical calculation; the preparation of graphic charts and exhibit material; elementary report-writing; the abstraction, re-tabulation or re-calculation of statistical materials shown in reports of governmental and private agencies; the operation of an efficient general information service, library technique; office management, and general clerical practice. Much of this outline applies equally to the principles underlying office procedures of the actuary, accountant and statistician.

Analytical Statistics

When important conclusions are to be drawn from data, especially such conclusions as may have a bearing upon an organic administrative policy, it is often necessary to submit the facts to further treatment under the methods of quantitative logic.

While higher statistical analysis is superficially a mathematical discipline, the arts of statistical analysis are in reality the working-tools of quantitative logic. *Analytical statistics* is, therefore, the application of quantitative logic to the crude numerical results of primary descriptive processes, and the aim of this analysis is to form reasoned, tested conclusions which lead to decisive action, or to a choice of action. With the single difference of subject matter, this technique applies to actuaries and statisticians.

Levels of Statistical Competence

Another convenient classification of statistics is from the standpoint of technical difficulty and of application to specific subject-matter. This classification and its applicability to the work of administrative statisticians, accountants and actuaries in insurance service is as follows: (a) *elementary statistics*, which includes descriptive methods only; (b) *intermediate statistics*, which includes the algebraic treatment of permutations and combinations, and probabilities and perhaps a little higher algebra and analytic geometry, with an elementary insight into the more obvious procedures of the theory of observations, including differencing; the practical calculation of constants (statistical measures of dispersion, co-variation and association), elementary curve-fitting, and tests for the dependability of statistical ratios; (c) *advanced statistics*, which includes the rigorous demonstration by mathematical methods of the advanced analytical procedures. This implies an expert knowledge of the calculus of probabilities, the higher theory of observations and the general philosophy and theory of group phenomena; (d) *statistical subject-matter*, which includes acquaintance with the historical and contemporary facts of insurance and insurance research, and the results, in their insurance bearings, of applying statistical methods to the external fields of sociology, public affairs, medicine, surgery and public health. It also includes principles of management as developed through the statistical control and analysis of practical business operations.

Now, retaining our (a), (b), (c), and (d) notations for purposes of brevity, let us suggest the scope of the statistical training of certain technical officers of an insurance organization. This is set forth in categorical form below.

Extent of Technical Training in Statistics and Acquaintance with Statistical Subject Matter

TECHNICAL GROUP	STATISTICAL TRAINING			
	a	b	c	d
Actuaries.....	X	X	X	—
Accountants.....	X	—	—	X*
Investment experts.....	X	—	—	X*
Administrative statisticians.....	X	X	X	X
Underwriters and agency executives....	X†	—	—	—
Medical directors.....	X	—	—	X*
Insurance lawyers.....	—	—	—	X*
Publicity specialists and journalists....	X†	—	—	X*

*Special fields

†Graphics chiefly

Administrative Statistics

Colonel M. C. Rorty*, defines the administrative function of statistical control under the auspices of the statistician as follows:

"Genuine statistical control (in business) must begin with the desire of the executive to base his decisions so far as practicable, on a careful analysis of the facts, both external and internal, which relate to his business. It is the function of the statistician to assemble the facts, all the facts, and nothing but the facts; to analyze these facts in such manner as to indicate obvious courses of action, and where obvious courses of action cannot be indicated, to determine as accurately as possible the probable range of results under different plans of procedure. The principle to be followed is that of centralization of statistical control in matters of method and general policy, combined with decentralization in matters lying within the field of individual departments or organization units."

Data for the Administrative Statistician

Now, the administrative statistician has recourse to several important sources of data in the insurance business and these are set forth below.

(a) The ordinary, routine books of account, the records compiled for the executives by the several departmental units of the company. For some of these records the analysis and interpre-

* "Statistical Control of Business Activities," *Harvard Business Review*, January, 1923. Also: Colonel Rorty's "Making Statistics Talk," *Industrial Management*, Dec. 1920, Jan-Feb, 1921.

tation, should, under Colonel Rorty's definition of statistical control, be left entirely with the departmental executive; but, when these interpretations affect organic executive policy, it seems well to recommend that the analysis be developed by the administrative statistician because he is in control of comparative external data of the same type, and is acquainted with the sources and characteristics of published data on matters relating to the proposition in hand. He is often able to judge the reliability of external data through his knowledge of the personalities and methods back of certain published records. This is important.

(b) Year books, periodicals and published tables and charts dealing with insurance or other data which bear upon the problems of the insurance business.

(c) Special inquiries undertaken either by the statistician or by departmental executives into the various underwriting, investment, supervisory, regulatory and other problems initiated either by the statistician or by his fellow technicians.

(d) Published statistics of governmental and private agencies which bear directly or indirectly upon the four important branches of insurance service.

Definitions of the Administrative Statistician's Field of Service

You may wonder what that term "insurance service" covers. I have given below a classification of the four important aspects of insurance as a public service function.

a. *Insurance service pioneers for opportunities to assume or have transferred to it measurable, insurable risk.** It discovers insurable risk. It is rather interesting in reviewing the history of the several insurance branches to determine what lines of coverage were instituted by reason of the initiative of insurance institutions and in what instances the coverage resulted from external initiative.

b. *Insurance service determines the degree and nature of measurable, insurable risk* and attempts a statement of the tangible losses involved and of the social costs of untransferred or undistributed risk.*

*For a classification of risk and of methods of dealing with risk, see: Hardy, C. O. "Risk and Risk-Bearing" pp. 1-10, *University of Chicago Press*, 1923.

c. *Insurance service sets up suitable rate-making, underwriting and funding machinery for the efficient transfer of measurable, insurable risk and for the transmission, investment or payment of moneys involved.*

d. *Insurance service endeavors to minimize risk through the wise use of the funds which it may draw from the premium or other income; or it encourages, through demonstration or otherwise, the risk-mitigation activities of the federal and state governments empowered to do such work by statute law or under the welfare clauses of the federal and state constitutions.*

On the General and Technical Education of Insurance Actuaries, Accountants, and Statisticians

The insurance technician, whether he be actuary, accountant or administrative statistician, ought to be an expert in his particular specialty, but should have also a working-knowledge of a number of fundamental insurance sciences. Considering insurance technicians as a group, it seems desirable for our Society to encourage the attainment of a working-knowledge of the seven subjects set forth below. Your Educational Committees have considered this syllabus to be desirable* for the insurance technician.

1. Mathematics, the principles of science and applied logic.
2. Actuarial methods. (Ratemaking, valuation and surplus distribution.)
3. Insurance principles and practises—description of the important lines of coverage.
4. Insurance accounting.
5. Insurance law.
6. Insurance statistics, including administration and management principles.
7. Insurance economics, including the theory of risk, investment principles, social insurance and allied topics.

The administrative statistician in insurance service should "major" in statistics in its several sub-categories, in the principles and practices of insurance, in the description of the important

*See recommendations of Dr. Blanchard's Committee, p. 443, *Proc. C. A. S.*, Vol. IV, 1917-1918.

lines of coverage, in insurance economics and in management principles. He needs a working-knowledge of general economics, insurance investment practice, insurance accounting, insurance law, and elementary actuarial methods.

GENERALIZED SERVICE PROBLEMS FOR THE INSURANCE STATISTICIAN

Innumerable problems confront the forward-looking executive and his intelligence officer, the insurance statistician. There are generalized problems affecting the economic and social welfare of the population as a whole, into the solution of which the administrative statistician can enter through his external connections with statesmen, economists, sociologists, physicians and sanitarians. One of the most important of these general problems which deserves the attention of insurance executives is the outlook for the economic well-being of the population of this country over the next twenty-five or thirty years. Are we facing a period of long-time downward trend in wages and in the cost of living and what are the prospects for improvement in real wages? What is the probable trend of yield rates on our fixed-rate investments? What is the outlook for the further improvement of conditions affecting the public health and the physical welfare of the individual citizen? What is the prospect for the control of the rising tide of accidents and injuries on our public highways? This is a function of increased population and of more widely diffused prosperity. What are the implications of the ever-increasing concentration of modern populations in large cities? What will be the effect upon the market for the several lines of insurance, and for the extension of coverage, when impending large-scale changes in industrial organization become definitized? What will be the effect upon industry and upon the welfare of the workers of super-power development and of the wholesale migration of organic industries, such as textiles, etc. What of the farmer? All of these are immensely important problems for the insurance executive of the future, and require the services of the statistician,—one qualified not only in external, social, economic and vital statistics, but in the seven basic insurance sciences.

SPECIFIC SERVICE PROBLEMS FOR THE INSURANCE EXECUTIVE

So far as the detailed operations of insurance institutions are concerned, the service-problems for the executive and for the administrative statistician of the immediate future fall into nine chief groups.

(a) *Problems of personnel and space.*

Selection, retention, promotion and compensation of head office and field personnel. Trends of wages and the labor market for clerical and field personnel. Debased currency and the service expense-rate.

Application of principles of business management to personnel problems; head and branch office space facilities in relation to cost and speed of service to the assured.

(b) *Underwriting problems*—Potential markets for insurance; adequacy and extension of existing coverage; practical underwriting and the expense problem; conservation of existing coverage; improvements in policy practice; relative advantages of medical, lay and engineering inspection of risks; agency administration (remote control *versus* regional head office and specific locality control); agency and brokerage systems and costs from the policyholder's point of view; criteria for the selection and education of agents and brokers.

(c) *Funding problems*—facilities for premium collection; banking practice of insurance organizations; settlement and adjustment of claims from the policyholder's point of view.

(d) *Insurance investments; accounting practice.*

Insurance as investment banking; the money market and the yield on fixed-rate securities; aid from insurance institutions in the development of a national program for constructive credit *versus* the existing consumptive credit structure; national monetary policies; the rectification of insurance accounting methods and the establishment of insurance accounting principles.

(e) *Supervision, regulation and taxation of insurance; insurance law.*

(f) *Policy provisions and stipulations.*

Liberalization of policy provisions; special adaptation of underwriting methods to secure maximum coverage at minimum cost

(group insurance); wholesale insurance and the co-operative movement.

(g) *Significance of general data of the insurance business; insurance publications.*

How shall the data published in insurance year-books and periodicals be developed for the good of the business? How shall we use current publications (sociological, economic, medical, legal, etc.) in the education of head office and field personnel? Insurance journalism and the universities.

(h) *Loss experience.*

The review of loss experience in relation to risk classification and the soundness of lay, medical or engineering selection; value to the public of analyzed loss experience; preventive aspects of insurable, measurable risk; service of published insurance loss experience to national and international agencies for public health and public safety.

(i) *Public relations aspects of the insurance business.*

Risk-mitigation service of insurance institutions and the public welfare; extension of public service features of the insurance business; extent to which insurance coverage alleviates economic distress; an inventory and an appreciation of fifty years of insurance service; public *versus* private insurance enterprise; the segments of the policyholder's premium dollar; critical survey of insurance history and the outlook for future service possibilities.

WHO SHALL BE CHOSEN FOR ADMINISTRATIVE STATISTICAL SERVICE?

Certain principles govern the choice of persons who shall be given the opportunity to serve insurance as administrative counselors. There is first the question of physique adequate for the gruelling, never-ending program of study, the polishing of technique, the active employment of powers of constructive imagination, criticism and discourse which fall to the lot of an administrative statistician. Then there are also those inborn characters of courage, intellectual honesty, the capacity for firmness and decision, the logical faculty, historical sense, the capacity for real understanding or wisdom and the prophetic attri-

butes. These, with technical equipment, stamp him as the scholar in business; but he should have the address and manner of men accustomed to deal with business facts. Rather an impossible proposal? Perhaps, but it is a goal to shoot at! Targets are meant to be missed occasionally! It is not always a case of "*aut Caesar aut nullus*," but rather a question of choosing for employment and training the candidate who has a number of these personal attributes.

Technical Training of Administrative Statisticians

Our Society and the American Statistical Association are the only two learned societies in this country that are officially committed to a search for ways and means of educating statisticians. Neither Society has more than a provisional outline of a plan. Perhaps, some real progress will be made during the next few years in suggesting a working procedure whereby persons may secure first, a background, humanistic education for the development of the natural faculties prerequisite for a statistical career; and second, a technical education in the statistical arts and, from our point of view, in the basic insurance sciences. As our fellow-member, Mr. W. W. Greene, has pointed out this is not exclusively the task of the colleges and universities, because true educational processes extend throughout life. Much of the burden of the teaching program will fall upon technicians in the business. With respect to the administrative statistician one could properly suggest five years of practical training under a teaching actuary, two or three years under an accountant, and several years of practical work in the underwriting and administrative branches of the business.

We aim to serve four groups of insurance students: (1) the young people entering the business during adolescence, after some high school training, who are inspired by the precept and example of their elders to qualify for professional service; (2) graduates of colleges, and in recent years particularly, graduates of schools of business conducted by the universities; (3) persons who have pursued graduate studies in economics, insurance, accounting or the actuarial sciences; (4) persons of established reputation in the business,—underwriters, engineers, physicians, lawyers, etc., who wish to broaden their technical knowledge of the insurance sciences.

The first group, as we have learned in our ten years of educational work in the Society, consists of (a) employed students in small towns with inadequate facilities for study, and these we have tried to help through our loan library, and by suggesting correspondence courses; and (b) students in large centers of population having access to extension departments of the universities. The second group—college graduates—sometimes enters the business with more than fair preparation in mathematics and the business sciences. The third group—postgraduates—presents the problem of reversing the tendency toward excessive specialization. The latter two classes of students need to be provided with sound training in the operations and aims of the business and, of course, in the rest of the seven applied branches of insurance science.

It rests upon your Educational Committee to survey this field for future service to the insurance business, to recommend the preparation of suitable texts which will replace the scattered materials at present so ineffective and wasteful of the student's energy, to enlist the support of the Society for these enterprises or to secure proper external publishing facilities, to arouse the interest of insurance executives in the matter, to invite university teachers of insurance to organize their field, and to enlist the cooperation of insurance journals. The past ten years have witnessed progress in the preparation of statistical texts, not all of which are suitable for our students. It is hoped that before we meet in 1934 to celebrate the completion of another decade of service by our Society, we shall be able to report not only substantial progress in the education of insurance technicians but also offer concrete evidence of the effect of our Society's efforts to foster education. For the latter, the best test will be the plain facts that better actuaries, better accountants and better administrative statisticians have extended the benefits of a fourfold insurance service to groups of the American population who are now unprotected, that insurance costs have been reduced, and public good-will enhanced.

ACTUARIAL, STATISTICAL AND RELATED ORGANIZATIONS IN THE UNITED STATES AND ABROAD

BY

RICHARD FONDILLER AND JAMES S. ELSTON

With the thought that our members would like to have a convenient reference to the principal organizations dealing with actuarial science, statistical science, mathematical science and the sciences related thereto, the Secretary-Treasurer of the Casualty Actuarial Society requested the Secretary or a member of these organizations to furnish him with an historical review of their association. These reviews indicate the permanent value of each organization in raising professional standards and in contributing to the development of insurance or of the field of science with which the organization is connected. The reviews also show what general influence each association has contributed toward the development of insurance science or related sciences, through the investigations it has undertaken and published in the form of monographs. The past publications and the annual publications of each organization are also stated, together with the name and address of the Secretary. If any of our members are further interested in the aims or publications of any association, they may communicate with such organization.

In some cases the review was written by a member of this Society or of the organization in question. It is not intimated that the list is entirely complete, but it is hoped that the principal organizations in which our members may be interested are completely covered. Acknowledgment is made of the assistance rendered by the authors of the various articles.

CASUALTY ACTUARIAL SOCIETY

BY

RICHARD FONDILLER, SECRETARY-TREASURER

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 the years 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 pressing and 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 turned their attention to 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. Members of the Society have also served on the Advisory Committee on Accident and Health Reserves, the Committee on Military Pensions, the Committee on the 1920 Census, the Committee on the Standardization of Industrial Accident Statistics and the Committee on Workmen's Compensation Statistics. At the present time the Committee on Compensation and Liability Loss Reserves and also the Committee on the Total Permanent Disability Table are engaged in important research work which will redound to the benefit of the casualty business as a whole.

There are two grades of membership in the Society: Fellows and Associates; admission to either grade may be by election or by examination. Those who attain the grade of Fellow by examination are granted a diploma. Examinations have been held every year, commencing with 1915; they are held on the first Wednesday and Thursday in May of each year. There are two parts each in the examinations to become an Associate or a Fellow. Applications for examination must be received by the secretary on or before March 1 of each year. The membership

of the Society consists largely of actuaries and statisticians who are connected with the principal casualty companies in the United States and Canada. The Society has a total membership of 246, comprising 159 Fellows and 87 Associates. Many members are also members of the various scientific societies mentioned in this article.

The first president was Dr. I. M. Rubinow, elected in 1914 and 1915; the second, James D. Craig, elected in 1916 and 1917; the third, Joseph H. Woodward, elected in 1918; the fourth, Benedict D. Flynn, elected in 1919; the fifth, Albert H. Mowbray elected in 1920 and in 1921; the sixth, Harwood E. Ryan, elected in 1922; the seventh, William Leslie, elected in 1923; the eighth, G. F. Michelbacher, elected in 1924.

The eleventh annual meeting of the Society was held in New York on November 20, 1924. Officers were elected as follows: President, G. F. Michelbacher, Secretary-Treasurer, National Bureau of Casualty and Surety Underwriters, New York; vice-president, S. B. Perkins, Assistant Secretary, The Travelers Insurance Company, Hartford, Conn; vice-president, Ralph H. Blanchard, Associate Professor of Insurance, School of Business, Columbia University, New York; secretary-treasurer, Richard Fondiller, Woodward, Fondiller and Ryan, Consulting Actuaries, New York; editor, Robert J. McManus, Asst. Statistician, Compensation and Liability Department, The Travelers Insurance Company, Hartford, Conn.; Librarian, Edward R. Hardy, Asst. Manager, New York Fire Insurance Exchange, New York.

The governing body of the Society is the Council, which consists of the above officers and Albert H. Mowbray, Harwood E. Ryan, William Leslie, Leon S. Senior, Edmund E. Cammack, Sidney D. Pinney, Winfield W. Greene, John M. Laird, Olive E. Outwater, James D. Craig, Thomas F. Tarbell, Paul Dorweiler, Frank R. Mullaney and James S. Elston.

The Society twice a year issues a publication entitled the *Proceedings* which contain the various papers presented at the May and November meetings of the Society. There have been twenty-two numbers of the *Proceedings* published. They are contained in ten bound volumes, and contain 141 papers dealing with the scientific aspects of the various casualty lines. Complete sets of the *Proceedings* are still available, bound either in buck-

ram or paper, although within a few years the supply of complete sets will be exhausted. An *Index* to the ten volumes has been printed and may be purchased in the same form as the bound volumes. Single numbers of the *Proceedings* (except Number 4) may be obtained at \$1.50 each by application to Richard Fondiller, Secretary-Treasurer, 75 Fulton Street, New York City. The Society also publishes annually a Year Book which contains the list of members, examination papers, and information relative to the examination requirements; this may be obtained upon application. "Recommendations for Study" is a pamphlet which outlines the course of study to be followed in connection with taking the examinations of the Society for admission; the third edition has been issued and may be obtained without charge by application to the Secretary-Treasurer; it has been reprinted for permanent record in *Proceedings* No. 22.

THE ACTUARIAL SOCIETY OF AMERICA

BY

JOHN S. THOMPSON*, SECRETARY

The Actuarial Society of America was organized April 25, 1889, with thirty-eight charter members and is thus the parent actuarial society in America. The object of the Society was and is the promotion of actuarial science by personal intercourse, presentation of appropriate papers, discussion and such other methods as may be found desirable.

For some years the Society was conducted in certain respects as a club, members being admitted only by vote of the Council. A junior membership was established in 1896, so that since that time there have been two grades of members: Fellows and Associates. Admission to either grade is by examination; the Constitution also provides for admission of members by election, but no one has been so admitted for several years. Examinations have been held each year beginning with 1900, the present practice being to hold them on the first Wednesday and Thursday after the twentieth of May. The Associateship examination is divided into four parts, the first two relating to pure mathematics through the Elements of the Differential and Integral Calculus

*Fellow, Casualty Actuarial Society.

with special emphasis on the Theory of Probabilities and Calculus of Finite Differences, and the second two relating to the application of mathematics to the Theory of Compound Interest and of Life Contingencies. The Fellowship is divided into two parts relating to practical actuarial science, accounting, finance, investments, insurance law, pension funds, and the application of actuarial science to branches of insurance other than life. Application for admission to the examinations, accompanied by the necessary fees, must be received by the Secretary on or before March 1 preceding the examination date. The Society has a membership of 203 Fellows and 172 Associates, 375 in all. These members are for the most part executive officers or actuaries of insurance companies or of State Insurance Departments, or are employed in some other capacity in connection therewith.

The moving spirit in the formation of the Society was David Parks Fackler*, who in March, 1889, sent a circular to the actuaries of all companies in the United States and Canada, proposing a meeting the following April. The first president, elected at the organization meeting, was Sheppard Homans, after whom followed David P. Fackler*, Howell W. St. John, Emory McClintock, Bloomfield J. Miller, Thomas B. Macaulay, Oscar B. Ireland, Israel C. Pierson, Rufus W. Weeks, Daniel H. Wells, John K. Gore, Archibald A. Welch*, William C. Macdonald, James M. Craig*, Arthur Hunter*, Henry Moir*, William A. Hutcheson*, and Robert Henderson*. The present president is Arthur B. Wood*, Vice-President and Actuary of the Sun Life Assurance Company of Canada, Montreal. With one exception, each president has held office for two years.

The last annual meeting of the Society was held in New York on May 15 and 16, 1924, at which time the following officers were elected: President—Arthur B. Wood*, Vice-Presidents—James D. Craig* and Edward E. Rhodes, Secretary—John S. Thompson*, Treasurer—David G. Alsop, and Editor—John M. Laird*.

The governing body of the Society is the Council, which consists of the above named officers, the ex-presidents and nine elected members. The elected members of the Council at present are: James F. Little*, James B. McKechnie, Edward B. Morris*, John G. Parker, Edmund E. Cammack*, T. A. Dark, R. D. Murphy*, W. M. Strong* and S. Milligan*.

*Fellow, Casualty Actuarial Society.

Twice a year the Society issues a publication entitled *Transactions* which contains the various papers presented at the meetings of the Society together with discussions thereon. There have been seventy-one numbers of the *Transactions* published, which, up to seventy, inclusive, have been combined into twenty-four volumes; at present two numbers, those of May and October of each year, constitute a volume. Some of the older numbers are out of print, but paper bound copies of all numbers from 46 up and of many of the older ones are still available. The price for Nos. 46 to 63, inclusive, is \$1.50 per copy and from 64 to 71, \$2.00 per copy. If subscribed for in advance, the two numbers for any calendar year may be obtained for \$3.00. A limited number of bound copies of XXII, XXIII and XXIV may be had at the price of \$4.50 per copy. The price of numbers prior to No. 46 depends on the quantity the Society still has on hand, although some are still available at the regular price of \$1.50. An Index of the first fifteen volumes has been published and one for Volumes XVI to XXV, inclusive, will be compiled and published as soon as Volume XXV is completed. Each year the Society publishes also a pamphlet containing the list of officers, members and students, a copy of the Constitution and By-Laws and a statement as to the requirements for admission including the syllabus for the examinations. To assist students in preparing for the examination, an additional pamphlet entitled "Recommendations of the Educational Committee" has been compiled, which gives information as to the course of study to be followed in connection with the successive examinations. These two booklets last mentioned may be obtained without charge by applying to the Secretary at 256 Broadway, New York City.

Besides the *Transactions*, the Society has for sale the following publications: *Transactions of the Fourth International Congress of Actuaries*, certain *Actuarial Studies, Problems and Solutions* (covering first two parts of Associateship Examinations), *Report of Specialized Mortality Investigation* (One Volume), *Report of the Medico-Actuarial Mortality Investigation* (Five Volumes), and the *Report of the American-Canadian Mortality Investigation 1900-1915* (Two Volumes) (with co-operation of American Institute of Actuaries). The three investigations, the reports of which have just been referred to, are in some respects without a parallel in the history of statistical investigation in connection with

the life insurance business and constitute valuable aids in the practical process of selection and underwriting.

AMERICAN INSTITUTE OF ACTUARIES

BY

R. C. McCANKIE, SECRETARY

The American Institute of Actuaries was organized at a meeting held in Chicago, May 12, 1909, by a number of actuaries connected with some thirty Western and Southern companies and five professors of mathematics interested in the advancement of actuarial mathematics. The organization was incorporated November 10, 1909, as the American Institute of Actuaries under the Illinois corporation law. The object of the Institute is to advance the science of insurance mathematics and the knowledge of the theory and practice of life insurance and related interests by associating together persons of like interest.

The American Institute began its career with a list of forty-two fellows and twenty-two associates. Provision having been made for contributing membership by legal reserve life insurance companies desiring to send representatives to the meetings, there were also twenty-two companies so represented at the first meeting. At the last annual meeting of the Institute, held June 12 and 13, 1924, the membership had grown to 114 Fellows, 73 Associates and 121 contributing (company) members, distributed widely throughout the United States and Canada and including a member each in Japan, Chile and Mexico.

In addition to the list of fellows, associates and contributing members, the Institute has a large list of students preparing for the examinations held annually in April. At the last such examination 150 students wrote 357 examination papers towards admission as fellows or associates. The examinations are twelve in number, eight for admission as associate and four in addition for the fellowship degree. The subjects are the same as in the case of the Actuarial Society but in some cases in a slightly different sequence; (1) elementary algebra and plane geometry, (2) higher algebra, (3) plane trigonometry and analytic geometry, (4) finite

differences and calculus, (5) accounting and interest, (6) theory of probabilities, annuities and insurances, (7) mortality tables, etc., application of finite differences and the calculus, (8) valuation, (9) investigation and graduation of mortality experience; elements of statistics; impaired lives, disability, (10) problems of distribution, premiums, valuation, etc., (11) life insurance accounts, investments, banking and finance, laws and regulation, (12) policy forms, history of life insurance, pension systems, general application of actuarial principles. Any one desiring more detailed information about the course of study for the examinations may obtain from the secretary of the Institute, R. C. McCankie, Equitable of Iowa Building, Des Moines, Iowa, a copy of the report of the Educational Committee.

The American Institute of Actuaries holds two meetings each year, the regular annual meeting between May 15 and June 15, and the second meeting usually in November. Original papers are presented and discussed at each session; topics for informal discussion are submitted in advance, thus affording the members an opportunity to exchange views and experience on their current problems and practice. The papers and discussions are printed in the *Record*, the official publication of the American Institute of which copies may be obtained from the secretary. Twenty-eight numbers have been published, but No. 16 was omitted owing to the cancellation of that meeting on account of the influenza epidemic. These numbers are comprised in thirteen volumes. The American Institute cooperated with the Actuarial Society in the American-Canadian Mortality investigation.

The affairs of the Institute are managed by a board of governors consisting of the officers, the ex-presidents and six fellows elected to serve. The ex-presidents now living and acting as members of the board are H. W. Buttolph, O. J. Arnold, J. H. Nitchie, C. H. Beckett, Geo. Graham* and Lawrence M. Cathles. The other presidents have been Lucius McAdam and Albert G. Portch. The elected members of the board are Robertson G. Hunter, John G. Parker, J. M. Laird*, T. A. Phillips, F. B. Mead* and E. L. Marshall. The officers elected June 13, 1924, were: President, Percy H. Evans; vice-president, L. A. Anderson; secretary, R. C. McCankie; treasurer, B. J. Stookey; librarian, E. R. Carter; editor of the *Record*, E. G. Fassel.

*Fellow, Casualty Actuarial Society.

FRATERNAL ACTUARIAL ASSOCIATION

BY

E. P. S. ALLEN, SECRETARY

The Fraternal Actuarial Association was formed in August, 1916, under the name of "Association of Actuaries of Fraternal Societies". Later in the year a referendum was taken upon the name of the organization and upon a favorable ballot being cast, the name was changed to the present one.

The Association has for its main object the promotion of actuarial science with particular application to the system of fraternal insurance, by the presentation of appropriate papers, discussion, and any other means that may carry out this object. Apart from the development of actuarial science within its own membership, the Association has another important function in connection with the fraternal societies themselves. The majority of the fraternal societies are governed by groups of representatives chosen from their membership who are not necessarily well informed on insurance matters. The Association holds itself responsible for acquainting, so far as possible, the representatives of these fraternal societies with the need and reasons for actuarial guidance.

The Association has a membership at the present time, consisting of sixty-four active members and forty-two associate members. Active members are actuaries particularly interested in fraternal insurance; associate members are fraternal societies which, since they contribute to the expenses of the Association, may have delegates in attendance at the meetings and receive the Association's publications.

Admission to membership may be by election or by examination, and is obtained by making formal application to the Council.

The Presidents in order of election were as follows:

G. D. Eldridge.....	1916-1917	F. M. Speakman...	1920-1921
A. Landis*.....	1917-1918	W. P. Coler.....	1921-1922
S. H. Pipe.....	1918-1919	W. N. Phillips.....	1922-1923
C. W. Iliff.....	1919-1920	E. B. Fackler*.....	1923-1925

The Association issues its *Proceedings* from time to time in book form, seven of these Volumes having been published up to the present. The *Proceedings* contain all the papers and discussions read at the different meetings of the Association, and may be obtained from the Secretary (804 Temple Building,

Toronto, Canada) upon application. The price per volume is \$2.50.

The Council elected at the annual meeting held in Washington, on the 25th of August, 1924, is as follows:—

President, E. B. Fackler*; *Vice President*, J. H. Woodward*;

Secretary, E. P. S. Allen; *Treasurer*, R. D. Taylor;

Editor, S. H. Pipe; *Librarian*, G. D. Eldridge;

and elected members: C. E. Brooks, C. L. Alford, W. D. Kieft, D. D. Macken.

*Fellow, Casualty Actuarial Society.

THE INSURANCE INSTITUTE OF AMERICA

BY

D. N. HANDY, LIBRARIAN

The Insurance Institute of America was organized in Philadelphia, April 23, 1909. The conference which resulted in its formation was called by the Fire Insurance Society of Philadelphia, March 26, 1909 and was attended by representatives from the Fire Insurance Society of Philadelphia, The Insurance Society of New York, The Fire Insurance Club of Chicago, The Insurance Institute of Hartford and The Insurance Library Association of Boston. The name originally adopted, "The Association of Insurance Societies and Institutes of America," was later changed to The Insurance Institute of America. In May 1924, the Institute was incorporated by an act of the Legislature of the State of New York.

Its object was set forth in its constitution in the following words: "The object of the Association shall be the discussion in annual conference of subjects bearing upon the welfare of the several Societies and Institutes represented and through cooperation and free interchange of views to add to the efficient operation of each individual body." Its work has been wholly along educational lines.

The membership of the Institute consisted at first of the societies represented at the Philadelphia meeting. Afterwards,

this was increased and this year consists of the following associations whose aims are chiefly educational:

MEMBERS

- INSURANCE SOCIETY OF THE CAPITAL DISTRICT,
Arkay Building, Albany, N. Y.
- INSURANCE LIBRARY ASSN. OF ATLANTA, GA.,
221 Hurt Building, Atlanta, Ga.
- THE INSURANCE SOCIETY OF BALTIMORE,
10 South Street, Baltimore, Md.
- THE INSURANCE LIBRARY ASSN. OF BOSTON,
18 Oliver St., Boston, Mass.
- THE INSURANCE CLUB OF CHICAGO,
2258 Insurance Exchange Bldg., Chicago, Ill.
- INSURANCE SOCIETY OF CLEVELAND,
602-4-6 B. F. Keith Bldg., Cleveland, Ohio
- THE NEALE-PHYPPERS CO. INSURANCE CLUB,
1240 Huron Road, Cleveland, Ohio
- THE INSURANCE INSTITUTE OF HARTFORD, INC.,
60 Prospect Street, Hartford, Conn.
- THE PROFILE CLUB,
Manchester, N. H.
- THE FIRE INSURANCE CLUB OF MILWAUKEE,
168 Wisconsin Street, Milwaukee, Wis.
- THE INSURANCE SOCIETY OF NEW YORK,
84 William Street, New York City
- SECURITY INSURANCE CLUB, 115 Elm Street, New Haven, Conn.
- THE FIRE INSURANCE SOCIETY OF PHILADELPHIA,
232 South Fourth Street, Philadelphia, Pa.
- FIRE UNDERWRITERS' ASSN. OF THE PACIFIC,
912 Merchants Exchange Bldg., San Francisco, Calif.
- THE CLERKS' ASSN. OF THE SPRINGFIELD F. & M. INS. CO.,
Springfield, Mass.
- THE INSURANCE CLUB OF ST. LOUIS,
435 Pierce Building, St. Louis, Mo.
- FIRE INSURANCE CLUB OF WATERTOWN, N. Y.,
Agricultural Ins. Co., Watertown, N. Y.
- THE INSURANCE ROUND TABLE OF PITTSBURGH,
2236 Perrysville Ave., Pittsburgh, Pa.

Meetings of the Association have been held annually since 1909 as follows:

1910	New York City	1918	Baltimore
1911	Chicago	1919	New York City
1912	Boston	1920	New York City
1913	Hartford	1921	New York City
1914	Philadelphia	1922	New York City
1915	Memphis	1923	Hartford, Conn.
1916	Cleveland	1924	New York City
1917	Chicago		

The first officers of the Institute consisted of Edgar A. Law of the County Fire Insurance Co., Philadelphia, President and D. N. Handy, Librarian of The Insurance Library Association of Boston, Secretary-Treasurer. Subsequent officers were:

	<i>Chairman</i>	<i>Secretary-Treasurer</i>
1910-11	A. R. Hosford, N. Y. City	D. N. Handy, Boston
1911-12	L. A. Tanner, Chicago	J. H. Kenney, Phila.
1912-13	D. N. Handy, Boston	J. H. Kenney, Phila.
1913-14	D. N. Handy, Boston	J. H. Kenney, Phila.

	<i>President</i>	
1914-15	J. H. Kenney, Phila.	B. Richards, Boston
1915-16	J. H. Kenney, Phila.	B. Richards, Boston
1916-17	A. T. Graham, Chicago	B. Richards, Boston
1917-18	A. T. Graham, Chicago	B. Richards, Boston
1918-19	F. Richardson*, Phila.	B. Richards, Chicago
1919-20	F. Richardson, Phila.	E. R. Hardy*, N. Y. City
1920-21	F. Richardson, Phila.	E. R. Hardy, N. Y. City
1921-22	F. Richardson, Phila.	E. R. Hardy, N. Y. City
1922-23	R. M. Bissell, Hartford	E. R. Hardy, N. Y. City
1923-24	C. A. Ludlum, N. Y. City	E. R. Hardy, N. Y. City

At the first annual meeting of the Incorporated Institute held in New York, in 1924, C. A. Ludlum, Vice President of the Home Insurance Company of New York, was re-elected President; and Mr. E. R. Hardy*, Assistant Manager of the New York Fire Insurance Exchange, was re-elected Secretary-Treasurer.

The Institute, through various committees of which the most active has been the Educational, has prepared study courses in the Fire, Casualty and Marine branches and held examinations

*Fellow, Casualty Actuarial Society.

annually since 1911. More students have sat for examinations in the Fire branch than in either of the others, since courses were offered considerably earlier in this than in the other branches. In all about 1,000 persons have sat for examinations in the Institute's courses while probably 4,000 have attended lecture courses provided by the several constituent associations for those wishing to enroll for the examinations. To students completing the courses a diploma is awarded. Examinations are held at announced dates in May or June.

Complete lecture outlines for a three years course in Fire Insurance, for a first years course in Workmen's Compensation, for Automobile Casualty Ratemaking, for History and Development of Automobile Liability Insurance, for Automobile Liability, Property Damage and Collision Loss Adjustments and for a three year course in Fidelity and Suretyship have been published and others are in preparation for Workmen's Compensation Insurance. These may be obtained for a nominal charge from the office of the Secretary-Treasurer, 110 William Street, New York City.

The purpose of the Institute as set forth in the act of incorporation is:

(a) To provide and maintain a central organization for the promotion of efficiency, progress and general development among persons employed in connection with insurance of any kind, whethers members of the Institute or not, so as to secure and justify the confidence of the public and employees by reliable tests and assurances of the competence and trustworthiness of persons engaged in insurance.

(b) To encourage and assist the study of any subjects bearing on any branch of insurance.

(c) To publish a journal and any other matter deemed desirable.

(d) To form a library for the use of the members of the Institute.

(e) To offer money or other prizes for essays or research on any subject bearing on insurance.

(f) To devise and impose means for testing the qualifications of candidates for the certificates of the Institute by examination in theory and practice or by any other tests, and to grant certificates of qualifications to the successful candidates.

(g) To establish an honorary membership and to take such appropriate action, not inconsistent with the laws of this State, as to the executive committee may seem fitting and proper for recognizing and honoring work of distinction and particular merit in the field of insurance.

The Institute is empowered to acquire such property as shall be necessary for its corporate purposes, to adopt and use a seal, to have offices and conduct its business within the state of New York and elsewhere and to acquire funds for endowment purposes. The principal office of the Institute must be at all times within the state of New York.

At the incorporation meeting of the Insurance Institute held in New York, November 11, 1924 the following were elected to the Board of Governors: For one year,—Messrs. F. Highlands Burns,* W. G. Falconer, D. N. Handy, Frederick Richardson;* for two years,—Messrs. C. W. Bailey, William Brosmith, Otho E. Lane, C. R. Pitcher; for three years,—Messrs. Wm. Embery, J. B. Levison, Victor Roth, C. F. Shallcross.

At a subsequent meeting of the Board of Governors the six classes of membership provided for in the by-laws were defined as follows:

(a) *Corporate Members*, to include all incorporated insurance companies of whatever type or branch of the insurance business engaged in.

(b) *Organization Members*, to include insurance Societies whose purpose is primarily education.

(c) *Honorary Members*, to include those honored by the Governing Board because of their conspicuous service in the field of insurance education and economics.

(d) *Fellows*, to include those who have completed a prescribed course of study entitling them to the Institute's diploma, and in addition thereto have written a thesis deemed worthy of acceptance as complying with the requirements for a Fellow.

(e) *Associates*, to include those who have passed the Institute's examinations in a given branch and are entitled under the rules to its diploma.

(f) *Corresponding Members*, to include primarily citizens of other countries who are elected because of their qualifications in the field of insurance.

*Fellow Casualty Actuarial Society.

Fees and dues have been set as follows: For Corporate members \$25.00 the year; for Organization members a sum per capita of membership to be fixed each year by the Governing Board of the Institute; for Honorary members no fees required; Fellows \$10.00; Associate members \$3.00; Corresponding members no fees or dues.

The Governing Board may before December 31, 1925 elect as Fellows without examination persons in the insurance business who have by their attainments shown such qualifications as are deemed equivalent to the requirements of a Fellow. In the same manner the Governing Board may also elect as Associates persons who by reason of their qualifications are deemed to have complied with the requirements for an Associate. Recommendations of persons to be elected as Associates or Fellows must be made to the Secretary in writing.

The Educational Committee of the Institute consists at present of Messrs. William Embery for the Governing Board, L. N. Dennison, Chairman, Gorham Dana, William B. Medlicott, J. Sandison Trump and Lewis Harding.

AMERICAN STATISTICAL ASSOCIATION

BY

EDWIN W. KOPP*

The Association was organized in Boston, Massachusetts, in 1839. It is the oldest of the learned societies in the United States. The first constitution stated the purpose of the Association to be the "collection, preservation and diffusion of statistical information in the different departments of human knowledge." How these objects were to be attained was set forth in the by-laws, no less than thirty-three in number. From the outset, membership in the Association was taken seriously, each member upon his election being obligated to conform to the Constitution and By-laws. It was made the "duty of every fellow to prepare at least one article a year on some statistical subject which shall be at the disposal of the publishing committee."

From its beginning, the Association developed national and international contacts, and within a year had corresponding

*Fellow, Casualty Actuarial Society.

members in many states. At its first quarterly meeting it elected foreign members, the first of whom was the foremost statistician of his day, Adolphe Quetelet. Within its first ten years, more than thirty important addresses were made before the Association on a wide range of topics. The Association became closely identified with the affairs of the United States Census, and this relationship has continued to the present day. In 1844, it petitioned Congress "that the Sixth Census be revised and a new and accurate copy be published." At each succeeding Census various members of the Association cooperated in furthering the accuracy and completeness of the statistics.

Beginning with 1860, the Association has been in continuous touch with the International Statistical Institute. The Association has passed through several eras in the development of statistics. It has witnessed the rise of official statistics, the gradual evolution of modern analytical technique, and the penetration of the statistical approach to problems of human well-being and progress. At no time has it assumed any partisan attitude. Its officers have been called upon to act as arbiters in numerous controversies with a political tinge, and in each case, unbiased opinion and other service has been rendered.

The Association has been served by a number of distinguished scholars in the office of President and Secretary. Beginning with the Hon. Richard Fletcher, the President's office has been filled by Shattuck, Jarvis (thirty years), Walker (1883 to 1897), Wright (1897 to 1909) and a considerable number of men now living, who have achieved standing in the teaching and practice of statistics. Its Secretaries, Joseph B. Felt, Davis R. Dewey, Carroll W. Doten and Robert E. Chaddock gave long years of faithful and efficient service to the Association.

At the present time its officers are:

Louis I. Dublin*, President; R. E. Chaddock, R. H. Coats and M. O. Lorenz, Vice Presidents and Leonard P. Ayres, David Friday and Willford I. King, Counselors. Professor R. E. Chaddock is Acting Secretary-Treasurer (Columbia University, New York City) and Professor W. F. Ogburn is Editor. The Secretary and Editor are assisted, respectively, by three Assistant Secretaries and an Editorial Board.

Membership in the Association is open to all who are interested

*Fellow, Casualty Actuarial Society.

in statistics. Fellows, of whom there are less than 100, are selected from the membership by a committee, on the basis of distinguished achievement in statistical work or of service to the Association. Statisticians of established reputation in foreign countries are elected to honorary membership. Corporate membership is open to organizations conducting extensive statistical enterprises.

At the present time the Association has considerably more than 1,000 members and holds quarterly meetings which attract as many as three hundred members, and actually cooperates in the development of official and private statistics. After having given the matter due consideration for several years, the Association is considering an educational program which will seek to unify statistical instruction so far as that is practicable. The Committee having this matter in charge realizes that statistical instruction affects the training of government officials, accountants, business administrators, economists, actuaries, and other specialized workers who make more or less use of statistical methods and results. The Association realizes its responsibility for serving each of these groups and will make such recommendations to the schools and colleges as will serve the greatest number of students. Other Committees are at work on problems of business research, governmental labor statistics, vital statistics and other subjects. The Association publishes quarterly the *Journal of the American Statistical Association*, which may be purchased by subscription at \$5 per annum. The New Series of the Journal commenced in 1888 and comprises 19 volumes which include 148 numbers.

The Association is aiming at the present time to include in its membership every statistical worker in the United States and Canada. Efforts are being made to enlist the interest of universities and colleges, business organizations, actuarial and mathematical societies and government officials.

AMERICAN MATHEMATICAL SOCIETY

BY

R. G. D. RICHARDSON, SECRETARY

The object of the American Mathematical Society is to encourage and maintain an active interest in mathematical science. It was founded in 1888 at Columbia University as the New York

Mathematical Society; the name was changed to American Mathematical Society in 1894. The Society was incorporated in the District of Columbia in 1923.

The following is a list of Presidents of the Society, with their terms of office:

J. H. Van Amringe, 1889-1890	Maxime Bôcher, 1909-1910
*Emory McClintock, 1891-1894	H. B. Fine, 1911-1912
G. W. Hill, 1895-1896	E. B. Van Vleck, 1913-1914
Simon Newcomb, 1897-1898	E. W. Brown, 1915-1916
R. S. Woodward, 1899-1900	L. E. Dickson, 1917-1918
E. H. Moore, 1901-1902	Frank Norley, 1919-1920
T. S. Fiske, 1903-1904	G. A. Bliss, 1921-1922
W. F. Osgood, 1905-1906	Oswald Veblen, 1923-1924
H. S. White, 1907-1908	G. D. Birkhoff, 1925-1926

The Society is governed by a board of trustees, who have charge of financial matters, and by a council whose function is to formulate and administer the scientific policies of the Society and to act in an advisory capacity to the board of trustees; both trustees and council are elected by the Society. The Council consists of the officers of the Society, of certain ex-presidents and ex-secretaries, and of fifteen elected members.

The following officers were elected for 1925: President, G. D. Birkhoff; Vice-Presidents, G. C. Evans, T. H. Hildebrandt, J. H. M. Wedderburn; Secretary, R. G. D. Richardson; Assistant Secretary, Arnold Dresden; Treasurer, W. B. Fite; Librarian, R. C. Archibald; Editorial Committee of the Bulletin, E. R. Hedrick, J. W. Young, Arnold Dresden; Editorial Committee of the Transactions, A. B. Coble, Edward Kasner, H. H. Mitchell. The trustees for 1925 are as follows: W. B. Fite, Robert Henderson†, R. G. D. Richardson, G. D. Birkhoff, L. P. Eisenhart.

The Society publishes two journals, the *Bulletin of the American Mathematical Society*, a historical and critical review of mathematical science, and the *Transactions of the American Mathematical Society*, whose object is to make known as widely as possible important researches presented at the Society's meetings. The Society also publishes a series of *Colloquium Lectures*, each volume embodying recent developments in some special fields of mathematical science.

*One of the most distinguished American actuaries.

†Fellow, Casualty Actuarial Society.

About eleven meetings are held every year in various parts of the country for the presentation and discussion of mathematical papers; three in New York, two in or near Chicago, one in the Southwest, three on the Pacific Coast, and the summer meeting and Annual Meeting at places designated by the Council. The Annual Meeting for 1924 was held in Washington, D. C.

Election to membership in the Society is by vote of the Council. In addition to ordinary membership, there has recently been established a Sustaining Membership open to persons or institutions who contribute at least one hundred dollars annually to the support of the Society; sustaining members have the right to nominate a certain number of persons for election to membership in the Society, such persons to pay no dues.

Applications for membership, subscriptions to the journals, and any inquiries with regard to the Society may be sent to the American Mathematical Society, 501 West 116th Street, New York, N. Y.

THE MATHEMATICAL ASSOCIATION OF AMERICA

BY

H. E. SLAUGHT, EX-PRESIDENT

The Mathematical Association of America was organized at Columbus, Ohio, in December 1916 with 1097 charter members. It was incorporated in the state of Illinois on September 8, 1920.

The object of the Association, as set forth in the charter, is to assist in promoting the interests of mathematics in America, especially in the collegiate field, by holding meetings in any part of the United States or Canada for the presentation of and discussion of mathematical papers, by the publication of mathematical papers, journals, books, monographs and reports, by conducting investigations for the purpose of improving the teaching of mathematics, by accumulating a mathematical library and by cooperating with other organizations whenever this may be desirable for attaining this or other similar objects.

There are two kinds of membership in the Association, individual and institutional. Both are attained on application, properly supported, and on election by the Board of Trustees. There are at present over 1700 individual members and over 100 institutional members including many of the leading colleges and universities of the country. Each institutional member is

entitled to send a voting delegate to all meetings of the Association and is thus vitally interested in the progress of mathematical education.

The Association has sixteen sections which hold yearly or semi-annual meetings in as many parts of the country, thus bringing the stimulus of personal contact and the reading and discussion of papers within a reasonably near distance of all members. These sections are located in Kansas, Ohio, Missouri, Iowa, Indiana, Minnesota, Maryland — District of Columbia — Virginia, Kentucky, Rocky Mountain region, Illinois, Texas, South-eastern region, Louisiana—Mississippi, Michigan—Nebraska and Southern California. The Association holds two national meetings annually, one in the Christmas holiday week and one in September. These meetings extend over two days and attract speakers of national prominence in the mathematical field.

The presidents of the Association have been E. R. Hedrick 1916, Florian Cajori 1917, E. V. Huntington 1918, H. E. Slaughter 1919, D. E. Smith 1920, G. A. Miller 1921, R. C. Archibald 1922, R. D. Carmichael, 1923, H. L. Rietz 1924.

The governing body is a Board of Trustees, consisting of a president, two vice-presidents, a secretary-treasurer, a librarian, three members of a committee on Official Journal, and twelve additional elected members.

Some of the outstanding accomplishments of this, the youngest and largest, mathematical organization in the collegiate field, are as follows:

(1) The publication of a high grade mathematical journal, the *American Mathematical Monthly*, devoted to the interests of collegiate mathematics, and to stimulating the beginnings of mathematical research.

(2) The contribution of a subsidy to another journal—the *Annals of Mathematics*, for the publication of expository papers too extended for inclusion in the MONTHLY.

(3) The appointment of the National Committee on Mathematical Requirements, which was financed by the General Education Board, whose membership of fifteen included leading mathematicians in both the collegiate and secondary fields, whose far reaching investigations extended over a period of four years, with the cooperation of more than one hundred local mathematical organizations, and whose final report of 652 pages was published

in 1923. This report has made, and will continue to make, a profound impression upon the status and progress of secondary mathematical teaching.

(4) The securing of a generous and notable gift from Mrs. Mary Hegeler Carus, of the Open Court Publishing Company of Chicago, for the publication of a series of Mathematical Monographs whose purpose is to make accessible in convenient form a series of expository presentations of the best thoughts and keenest researches in pure and applied mathematics, to be set forth in a manner comprehensible not only to teachers and students specializing in mathematics, but also to scientific workers in other lines, and especially to the wide circle of thoughtful people who, having a moderate acquaintance with elementary mathematics, are willing and eager to extend that acquaintance provided it can be done without prolonged and critical study of the mathematical treatises. The first of these Monographs, entitled *Calculus of Variations*, by Professor G. A. Bliss of the University of Chicago, is now being distributed through the Open Court Publishing Company of Chicago. This series, which is capable of far reaching development, promises to be unique in its scope and possibilities for usefulness. It is hoped that the Association through this medium will render service in promoting the spread of mathematical knowledge.

AMERICAN INSTITUTE OF ACCOUNTANTS

BY

A. P. RICHARDSON, SECRETARY

The American Institute of Accountants is the successor of the American Association of Public Accountants, which was founded in 1887. While its membership then was in part composed of practitioners in different parts of the country, it was largely an organization of accountants practising in New York. In 1896 the first C. P. A. law was adopted in New York, largely the result of efforts by members of the original American Association of Public Accountants. Later Pennsylvania (1899), Maryland (1900), California (1901), Illinois (1903) and Washington (1903) adopted similar legislation. Today all the states, Alaska, the District of Columbia, Hawaii and the Philippines have similar laws. The change of name from American Associa-

tion of Public Accountants to American Institute of Accountants took place in 1916 and the successor was incorporated under the laws of the District of Columbia. The Institute today is a membership corporation, without capital stock. It is a national organization of accountants, with a selective growing membership of those who possess the highest ideals of the profession.

The Institute as a body meets once a year, either in the national Capitol (the annual meeting in September, 1925 will be held there) or in some other large city in this country. At the recent annual meeting in St. Louis (September 16-17, 1924) the following officers were elected for the coming year: John B. Niven, president; Ernest Reckitt, vice-president, W. H. West, vice-president, Arthur W. Teele, treasurer; A. P. Richardson, secretary.

The Institute delegates many of its duties to its council, which is a directing board of thirty-nine members. The council meets semi-annually.

The council at the present is constituted as follows: W. Sanders Davies; Stanley G. H. Fitch, Edward E. Gore, W. D. McGregor, George S. Olive, Charles G. Harris, Charles E. Wermuth, to serve for five years; P. L. Billings, James F. Farrell, Lewis G. Fisher, David L. Grey, T. H. Lawrence, Homer S. Pace, W. A. Smith, to serve for four years; Elmer L. Hatter, J. Edward Masters, James S. Matteson, R. H. Montgomery, Carl H. Nau, Ernest Crowther, E. G. Shorrock, to serve for three years; Albert T. Bacon, F. H. Hurdman, J. E. Hutchinson, Clifford E. Iszard, Walter Mucklow, John R. Ruckstell, W. R. Tolleth, to serve for two years; John F. Forbes, J. Porter Joplin, Waldron H. Rand, Frederick A. Ross, Frederic A. Tilton, C. R. Whitworth, William Jeffers Wilson, to serve for one year. The council in turn acts through an executive committee of seven members, which meets whenever the occasion demands it. Many other committees contribute valuable time and service to the progress of the Institute.

Membership at the present time is 1966 of whom 1569 are members and 397 associates. The qualifications for membership in the Institute include satisfactory education; agreement to observe the rules of ethics promulgated by the Institute; evidence of a certain number of years spent in public practice; passing the examinations conducted by the Institute, or evi-

dence of having passed a professional examination satisfactory to the Board of Examiners; and, of course, proof of good character and reputation.

Applications to join the Institute must be prepared on blanks supplied by the Institute. The examiners conduct regular examinations in May and November each year, and applications should be filed sixty days prior to the examination dates. At present thirty-four States and Territories cooperate with the Institute in the conduct of examinations.

The Institute has its operating office at 135 Cedar Street, New York. It owns the entire five-story building at that address. The affairs of the Institute, and of The Journal of Accountancy incorporated, all center in this building. The Institute library on the third floor is one of the most complete accounting collections in the country.

Several publications are issued under the auspices of the American Institute of Accountants. The *Journal of Accountancy* is now in its thirty-ninth volume and has a unique place in the accounting field. It is published on the first day of every month and sells for \$4 a year. The *Institute Bulletin* is a sixteen-page monthly publication of recent birth. It is designed to give information relative to accounting legislation, regional meetings, court decisions on accounting subjects and items of general interest to accountants.

The Committee on Public Affairs has received much favorable comment upon its recent activities. This comparatively recent committee, with its own staff of workers, is focusing public attention on public needs, finding places for the Institute members to perform public service and making constructive criticism of public matters in such a way that prominent men and organizations and newspaper editors throughout the country have already manifested a sincere interest in its activities.

THE INSTITUTE OF ACTUARIES OF GREAT BRITAIN

BY

JOSEPH B. MACLEAN, F. I. A., F. F. A.

The Institute of Actuaries was founded in 1848 and incorporated by Royal Charter in 1884. The Institute originated from a suggestion made by the Manager of one of the Scottish Life Insurance companies, that an association be formed in London,

to be conducted on similar lines to the Scottish Managers' Association. This latter association had for its object the discussion of questions of life insurance practice. A committee was formed in London and reported adversely on the suggestion, although it was admitted that "occasional meetings might be held with advantage if this should from experience be found to establish uniformity in dealing with points of practice." After considerable discussion the committee's report was disapproved and it was decided to establish a society, not, however, of the same nature as the Scottish Managers' Association, but "a scientific and practical association among the actuaries, secretaries and managers of the life assurance societies of Great Britain" (*i. e.*, England and Scotland).

The first president of the Institute of Actuaries was John Finlaison, then (1848) actuary to the National Debt Commissioners. The Institute represented officially both English and Scottish Actuaries until 1855 when the Scottish members detached themselves from the Institute in order to form the Faculty of Actuaries in Scotland.

The objects of the Institute are "to elevate the attainments and promote the general efficiency of all who are engaged in occupations connected with the pursuits of an actuary; to extend and improve the data and methods of the science which has its origin in the application of the doctrine of probabilities to the affairs of life; and specially, to investigate all monetary questions involving a consideration of the effects of interest and probability."

There are three classes of members of the Institute of Actuaries, namely, Students, Associates (A. I. A.) and Fellows (F. I. A.). Students are those who, having furnished evidence of general education, have been admitted as "Probationers" and have subsequently passed Part I of the examinations necessary for Fellowship.

A "Student" may be elected an Associate upon passing Parts II and III of the examinations and a Fellow upon passing Parts II, III and IV. Examinations are held annually in April in various centers throughout Great Britain as well as in the principal British Dominions and Colonies.

No exemptions are allowed on account of the possession of university degrees.

The most recently published report of the council of the Institute gives the membership (on March 31st, 1924) as 353 Fellows, 353 Associates, 194 Students, and 18 Corresponding Members, a total of 918, this being the largest membership of any actuarial society. There are in addition 300 candidates admitted as probationers.

The Institute is governed by a Council made up of 30 Fellows, including the Officers (President, 4 Vice-Presidents, Treasurer, 2 Honorary Secretaries and 2 Editors). At the election of officers in June, 1924, the following (*inter alia*) were elected:

President: A. D. Besant, Manager, Clerical, Medical & General Life Assur. Soc., London.

Honorary Secretaries: H. Brown and W. Penman, Staple Inn Hall, Holborn, London.

Treasurer: W. P. Elderton.

Joint Editors: R. Todhunter and J. Spencer.

Meetings of the Institute are usually held monthly at Staple Inn Hall from October to May with an annual general business meeting in June.

Papers read at the Sessional meetings together with other communications and items of actuarial interest are published in the *Journal of the Institute of Actuaries* ("J. I. A.") formerly a quarterly but, since 1922, published thrice annually. The Journal of the Institute was originally called the *Assurance Magazine*, the first two volumes bearing that title, and volumes III to XXIV being called by both names. Fifty-five volumes have now been published.

In addition to the Journal, the Institute has from time to time published many volumes of great importance to actuaries and which are too numerous to be detailed here. Mention should be made, however, of the various Text Books of the Institute as well as of the *British Offices Life Tables 1893* and *British Offices Life Annuity Tables 1893* (published in conjunction with the Faculty of Actuaries) and the recently published *Mortality of Annuitants 1900-1920*.

The *Institute Text Books* (now three in number), primarily intended to assist students of the Institute in preparing for the examinations, are recognized throughout the world as the authoritative treatises on the groundwork of actuarial science. Part I covers "Interest including Annuities Certain" by Ralph Tod-

hunter. Text Book Part II covering "Life Contingencies" was recently rewritten by E. F. Spurgeon and published, together with a new volume on "Calculus and Probability" by Alfred Henry.

THE FACULTY OF ACTUARIES IN SCOTLAND

BY

JOSEPH B. MACLEAN, F. I. A., F. F. A.

The Faculty of Actuaries in Scotland was constituted in January, 1856, and was incorporated by Royal Charter in 1868. It arose out of the voluntary detachment from the Institute of Actuaries (q. v.) of the thirty-eight Scottish members of that body. In a sense, however, the Faculty of Actuaries may be considered as ante-dating the Institute and as being the oldest actuarial association in existence. Periodical meetings of actuaries and other principal officers of life insurance companies in Scotland for the discussion of questions of practice took place prior to 1840 and it was the extension of this idea to England at the suggestion of the Scottish actuaries that led to the formation of the Institute of Actuaries. The separation of the Scottish and English members of the Institute resulted from a difference of opinion on the subject of qualification for membership in the Institute, but was, in fact, largely due to the necessarily unsatisfactory representation of Scotland in the Institute due to inconveniences of communication between Scotland and England, as well as to differences in the practices and laws of the two countries.

In 1859 the Faculty, membership in which was then practically confined to the principal officers of Scottish life insurance companies, promoted the formation of the Actuarial Society of Edinburgh with a view to assist the studies and promote the professional attainments of the junior members of the profession. This society maintained a separate and successful existence for forty-one years until in 1901 it was merged in the Faculty of Actuaries. Many valuable papers are contained in its published proceedings, the *Transactions of the Actuarial Society of Edinburgh*.

The objects of the Faculty have been briefly stated as being to "associate professionally those *gentlemen* (women have been admitted since 1919) who are engaged in the management of Life Assurance Institutions, or who are otherwise following the profession of an Actuary; to promote the study of the Doctrine

of Probabilities, of Vital Statistics and Statistics in General, of Finance as bearing on fluctuations in the value of money and of all cognate subjects, a knowledge of which is essential to the efficient discharge of the duties of a Life Assurance Manager or of an Actuary."

The membership of the Faculty consists of Honorary Fellows, Fellows and Associates. Any person desirous of prosecuting his studies in connection with the Faculty may, on recommendation, be enrolled as a student and after passing the four prescribed examinations may, if he (or she) has attained the age of twenty-one years be admitted an Associate. Associates are granted the diploma of the Faculty and may be admitted as Fellows on application and payment of the necessary fees. So far as concerns actuarial attainments there is, therefore, no distinction between an Associate and a Fellow.

Examinations are held annually in April in Edinburgh and in such other places as may be arranged. The diploma in Actuarial Mathematics of Edinburgh University is accepted in lieu of the first two examinations and any student who has graduated in mathematical honors at any university approved by the Council may be exempted from Part I.

Persons who possess "qualifications which render their admission to the Faculty desirable" may be elected on the nomination of the Council and "gentlemen of distinguished attainments in mathematical, statistical or financial subjects or who have rendered distinguished service in promoting the objects of the Faculty" may be elected Honorary Fellows upon recommendation of the Council.

At the present time there are 2 Honorary Fellows, 226 Fellows (of whom all but 14 have passed the examinations) and 226 students. There are, at present, no Associates. (Usually there is an interval of a few days, or weeks, only between election as Associate and as Fellow).

The Faculty is controlled by a Council, consisting of the President, Vice-Presidents, Honorary Secretary, Honorary Treasurer and Honorary Editor, and fifteen elected members. Sessional meetings for the purpose of hearing papers and other communications of interest to the profession are held at irregular intervals as required. The communications read at sessional meetings are usually printed and published and appear as the

Transactions of the Faculty of Actuaries ("T. F. A.") of which nine volumes have been published.

In addition to the Transactions, the Faculty has published (jointly with the Institute of Actuaries) the various volumes containing the statistics and graduated tables of the *British Offices Life Tables 1893* and the *British Offices Life Annuity Tables 1893*. The Faculty was also represented on the committees responsible for the production of the *Institute of Actuaries Life Tables (1863)*.

The present officers of the Faculty are:

President: G. J. Lidstone, Manager and Actuary, Scottish Widows' Fund Life Assurance Society, Edinburgh.

Vice-Presidents: W. G. Walton, C. Guthrie and R. M. M. Roddick.

Honorary Secretary: J. A. Thomson.

Honorary Treasurer: W. A. Robertson.

Honorary Editor: C. S. Penn.

The offices of the Faculty are at 14 Queen Street, Edinburgh, Scotland.

ROYAL STATISTICAL SOCIETY

BY

EDWIN W. KOPF*

The Society was organized at the suggestion of the eminent Adolphe Quetelet,—mathematician, astronomer and statistician. In 1832, a Statistical Section was added to the British Association for the Advancement of Science. Among other members directly interested were Mr. Charles Babbage, Mr. Drinkwater Bethune, Hallam, the historian, Professors Malthus and Empson, the Rev. Richard Jones, Sir John Lubbock and M. Quetelet. The inquiries of the section were restricted to "facts relating to communities of men which are capable of being expressed by numbers, and which promise when sufficiently multiplied to indicate general laws." As M. Quetelet considered this to be too limited a point of view, a Statistical Society was formed in London, March 15, 1834, with three hundred members. The Marquis of Lansdowne was the first President; Henry Hallam the Treasurer and Greig, MacLean and Tuffnell the Secretaries. The Society went to work energetically and communication was opened with

*Fellow, Casualty Actuarial Society.

statistical organizations elsewhere. In 1838, the *Journal of the Royal Statistical Society* was established, the current volume of which is LXXXVIII. Various special investigations have been made and the results published.

"The objects of the Royal Statistical Society are to collect, arrange, digest and publish facts, illustrating the condition and prospects of society in its material, social and moral relations; these facts being for the most part arranged in tabular forms and in accordance with the principles of the numerical method. The Society collects new materials, condenses, arranges, and publishes those already existing, whether unpublished or published in diffuse and expensive forms in the English or in any foreign language, and promotes the discussion of legislative and other public measures from the statistical point of view."

A Committee of the Society's Council was appointed in 1840 to consider the best method of taking the Census of 1841. The Society has performed distinguished services for the British Census ever since that time. Throughout the ensuing years, the addresses at the meetings and the pages of the *Journal* have been a repository for the facts concerning population, manufactures, commerce, health, vital statistics, civil order and general public welfare of Great Britain and the Dominions, as well as for technical papers on mathematical statistics. The published proceedings of the Society furnish very often the only accessible facts on the rise in well-being of the British population during the nineteenth century. The Current Notes, Book Reviews and Bibliographies included are very valuable to the statistician.

The Society has had the support and confidence of the Governments of Great Britain since its inception; the outstanding personalities of the nineteenth century were its officers and members. Babbage, Ashley-Cooper, Florence Nightingale, Farr, Guy, Galton, DeMorgan, Clifford, Rowe and Pearson are names which appear frequently in the pages of the *Journal*. The influence of the Society has been world-wide and its establishment led to the formation of societies of statisticians in other countries.

At the present time, the Society is in a flourishing condition; it includes more than 1,000 Fellows; its library contains more than 50,000 volumes; meetings are held monthly from November to June; its members are in every branch of the Government

service and in all walks of life where numerical data are of prime importance. Relatively to population, the Society's activities and its membership lead the world and set an example for emulation in America. The offices are at 9, Adelphi Terrace, Strand, London, W. C. 2.

INTERNATIONAL CONGRESS OF ACTUARIES

BY

JAMES S. ELSTON*

International Actuarial Congresses have been held in 1895 in Brussels, in 1898 in London, in 1900 in Paris, in 1903 in New York, in 1906 in Berlin, in 1909 in Vienna, and in 1912 in Amsterdam. Papers have been presented and discussed on practically all actuarial problems and many broader insurance problems including actuarial notation, mortality formulas, mortality investigations on various special classes of lives, valuation of life insurance contracts, calculation of premiums, substandard insurance, old age pensions, the interest rate, investments, reinsurance, friendly societies, insurance on infantile lives, invalidity insurance, workmen's compensation and other social insurance, taxation, history of insurance, fire insurance, government mortality and morbidity statistics, and university and other instruction on insurance. Usually several papers were presented at the same time on different phases of the same question, particularly on the development of the question in different individual countries. Complete reports comprising from one to four volumes have been issued covering each of the Congresses, the total reports comprising fourteen volumes, including 9,325 pages. The index of these volumes published by the Institute of Actuaries increases their value.

The COMITÉ PERMANENT DES CONGRES INTERNATIONAUX D'ACTUARIES organized by the first Congress has maintained continuity between the congresses and performed other valuable services in bringing the attention of actuaries to work done in other countries. The *Bulletin*, which has been published since 1896, and of which No. 22 or the 1923 Bulletin has just appeared, has been the best single source of keeping in touch with the literature on insurance published in other coun-

*Fellow, Casualty Actuarial Society.

tries. The special feature is the review of insurance each year in the different countries, including a bibliography of publications. The Bulletin also includes occasional original papers of a high standard. It is sent to members of the Permanent Committee. Such membership is open to Fellows and Associates of the Casualty Actuarial Society upon vote of the Council of the Permanent Committee. The General Secretary is E. Lefrancq, 48, rue du Fossé-aux-Loups, Brussels, Belgium. The Secretary for the United States and Canada is Wendell M. Strong,* Associate Actuary, Mutual Life Insurance Co., 32 Nassau St., New York City.

INTERNATIONAL MATHEMATICAL CONGRESS

BY

JAMES S. ELSTON*, SECRETARY, SECTION V

Section V of the International Mathematical Congress, held in Toronto, Canada, August 11-16, 1924, was devoted to Statistics, Actuarial Science and Economics.

The Chairmen presiding each successive day were W. J. Phelps, Ex-President of the Institute of Actuaries of Great Britain; Robert Henderson*, Ex-President of the Actuarial Society of America; M. Michel Huber, Directeur de la Statistique Générale de la France; Professor Dr. phil. J. F. Steffensen, President of Den danske Aktuarforening; and Professor C. Gini, Professor of Statistics in University of Padua, Italy, and editor of "Metron."

Papers given in this section were:

Professor M. Fréchet—On a General Formula for the Computation of Net Premiums.

Robert Henderson*—Some Points in the General Theory of Graduation.

G. Udny Yule—Some Life-Table Approximations.

Professor G. F. McEwen—A Method of Estimating the Significance of the Difference between Two Averages by Means of Bayes' Theorem on the Probability of Proportions.

W. P. Elderton—Mathematical Law of Mortality; A Suggestion.

Professor Dr. L. E. Phragmén—Sur une Méthode d'évaluer les Intégrales de probabilité.

*Fellow, Casualty Actuarial Society.

- Professor W. F. Willcox—Estimates of Population in the United States.
- Professor E. B. Wilson—A Problem in Keynes' Treatise on Probability.
- E. C. Molina—A Formula for the Solution of Some Problems in Sampling.
- Professor Dr. J. F. Steffensen—On a class of Quadrature Formulas.
- Dr. H. L. Rietz—On a certain Law of Probability of Laplace.
- Professor J. W. Glover*—Quadrature Formulas when Ordinates are not Equidistant.
- Dr. W. F. Sheppard—Interpolation with Least Square of Error.
- Professor Paul R. Rider—A Generalized Law of Error.
- Albert W. Whitney*—Actuarial Science in the Field of Workmen's Compensation Insurance; particularly the Mathematics of Schedule-Rating and Experience-Rating.
- Professor A. L. Bowley—Use of Mathematics in Economics, Social and Public Statistics.
- Arne Fisher—Application of Frequency Curves to the Construction of Mortality Tables.
- Lucien March—De l'erreur probable dans le calcul des moyennes.
- Professor C. Gini—Alcune ricerche sulla "fecondabilità" della donna.
- Hugh H. Wolfenden—On the Development of Formulae for Graduation by Linear Compounding with Special Reference to the Work of Erastus L. De Forest.
- Dr. Lowell J. Reed—Correlations between Climatic Factors and Death Rates.
- R. H. Coats and M. C. Maclean—Jottings from the Canadian Census.
- R. A. Fisher—On a Distribution Yielding the Error Functions of Several Well-known Statistics.
- Professor G. F. McEwen—Note on a Short Method of Computing Terms and Sums of Terms of the Asymmetrical Binomial.
- Lucien March—Les mesures d'après échantillons.
- Papers presented to other sections of the Congress:
- Professor P. Haag—Sur un probléme général de probabilités et ses diverses applications.

*Fellow, Casualty Actuarial Society.

- Professor P. Haag—Sur l'application des méthodes du calcul tensoriel à la théorie des moindres carrés.
- Professor N. Kryloff—Sur quelques recherches dans le domaine de la théorie de l'interpolation et des quadratures dites mécaniques.
- Professor N. Kryloff and T. Tamarkine—Sur une formule d'interpolation.
- Jacques Touchard—Sur la théorie des différences.

L'INSTITUT DES ACTUARIES FRANCAIS

BY

JAMES S. ELSTON*

L'Institut des Actuaries Francais was founded May 30, 1890, with thirty Fellows (Fondateurs). It now consists of six honorary members (Membres D'Honneur), nineteen Fellows (Membres Agrégés), seventy-six students (Membres Stagiaires), and twenty-three corresponding members (Membres Correspondants). Only Frenchmen are admitted as fellows and students. Students are admitted as such after passing examinations, much more limited in scope than American examinations. In 1923 which is typical, the first examination on mathematics included three questions, one on the Theory of Probabilities, one (two parts) on Calculus, and one on Differential Equations, the questions themselves being of a more advanced type than is required in English-speaking countries. The remaining three examinations amounted practically to essays; two on Financial Operations, one on Theory of Insurance, and one on Social Economics (Social Insurance). A Fellow is elected by a special committee after presentation of a thesis of a similar nature to the other papers presented to the Society. These theses form a considerable proportion of the published Proceedings.

The Secretary is Henri Auterbe, 146 avenue Emile-Zola (15^o) Paris.

From the beginning, the Institute has published the *Bulletin Trimestriel de L'Institut des Actuaires Francais*, of which 118 numbers have been published, arranged in 29 volumes

*Fellow, Casualty Actuarial Society.

containing, in addition to the minutes of the meetings, papers of a high standard, most of which are on some mathematical phase of life insurance or on the principles upon which the various other insurance institutions of a more or less social insurance nature in France are based.

DEUTSCHER VEREIN FÜR VERSICHERUNGS-WISSENSCHAFT

BY

JAMES S. ELSTON*, MEMBER

The Deutscher Verein Für Versicherungs-Wissenschaft, founded September 26, 1899, consists of Corporate and Personal members, the latter being those occupying leading positions in the Corporate members and other persons whose standing in the insurance business is acceptable. This differs from the actuarial societies reviewed in that it covers all branches of insurance including Fire and Marine, Life, Casualty and Social Insurance and that it embraces all phases of each branch. It has the following separately organized sections: Insurance Law and Economics, Actuarial Science and Insurance Medicine, to any or all of which each member may belong. It serves as the actuarial society in Germany, although this is only one phase of its work. There are about 365 Corporate and 1,400 Personal members. The Director is Prof. Dr. Alfred Manes, Berlin W 30, Landshuter Strasse 26.

The Society is this year publishing the 24th volume of the *Zeitschrift für die gesamte Versicherungs-Wissenschaft*, which is published quarterly and covers all branches and phases of insurance including occasional papers on actuarial science. Considerable space is devoted to insurance law and various phases of social insurance. In addition to the *Zeitschrift* the Society has published about thirty-two monographs of the same general nature on insurance (*Veröffentlichungen*).

*Fellow, Casualty Actuarial Society.

VEREINIGUNG SCHWEIZERISCHER VERSICHERUNGS-
MATHEMATIKER

BY

JAMES S. ELSTON*, MEMBER

The Vereinigung schweizerischer Versicherungsmathematiker was established June 17, 1905, with 36 members. It now consists of about 30 Corporate members, 12 Corresponding members and 175 Ordinary members. Admission is without examination to applicants with satisfactory technical and practical standing, but it is noteworthy that nearly half of the Ordinary members have the Doctor's Degree, many of them from the University of Berne, Switzerland. The Secretary is Dr. J. Riethmann, Blümli-Strasse 50, Zurich 6, Switzerland.

Nineteen volumes of the *Mitteilungen der Vereinigung schweizerischer Versicherungsmathematiker* (Bulletin de l'Association des Actuairees suisses) have been printed containing papers of the highest standing, mostly mathematical. The special feature of this publication has been the application of Calculus and the higher mathematics to the solution of the problems involved in social insurance institutions of Switzerland. A large majority of the papers are in German, though an occasional one and some other material is in French.

ASSOCIATION ROYALE DES ACTUAIRES BELGES

BY

JAMES S. ELSTON*, CORRESPONDING MEMBER

An historical review of the Association Royale des Actuairees Belges, which was founded January 8, 1895, was given in No. 30 of their "Bulletin". At its inception actuaries were practically unknown in Belgium but a few men were intensely interested in improving the basis of the many small insurance and other provident institutions which were not on a scientific plan. The Society attained its first recognition largely through calling the first International Congress of Actuaries. Since then through its members and its publications it has maintained a very success-

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ful struggle toward the improvement of the status of the various insurance institutions of Belgium.

The membership now consists of 26 Fellows (membres agrégés), 3 Associates (membres adhérents) and 20 Corresponding Members (membres correspondants). There are also 10 Contributing Members (membres donateurs). Fellows are Belgians elected only after passing a not very extensive examination on Social Economics (Social Insurance), Bookkeeping, Financial Operations, Theory of Probability and Life Contingencies. Election to Fellowship may be without examination by a three-quarters majority provided that at least half of the Fellows are present at the Meeting. The Secretary is M. L. François, 43, place de Jamblinne de Meux, Brussels, Belgium.

The Society has published the *Bulletin de l'Association des Actuaires Belges* from 1896 to date (33 numbers in all) which is devoted largely to insurance organizations of a semi-social insurance nature, although it contains extensive articles on such subjects as Interpolation and many reviews of actuarial literature of foreign countries. Toward the end of 1900 the members, finding that the Bulletin was of too high a standing to reach the public, started the *Bulletin de la Prévoyance*, quarterly numbers of which until 1914 were devoted to a more popular exposition of sound insurance principles as applicable to their insurance organizations.

SCANDINAVIAN ACTUARIAL SOCIETIES

BY

JAMES S. ELSTON*

The SVENSKA AKTUARIEFÖRENINGEN, founded in 1904, is composed of persons following the profession of actuary in Swedish insurance companies or occupying other positions connected with the technique of insurance. It now comprises about 85 members. The DANSKE AKTUARFORENING founded in 1901, includes about 50 members. The NORSKE AKTUARFORENING, founded in 1904, includes about 40 members. The FINLANDS AKTUARIEFÖRENING, founded in 1922, includes about 25 members. In 1904 an abortive effort

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was made toward the present joint publication of these societies which resulted in publication of Vol. I of *Aktuaren*. For the years 1914 to 1917 the *Svenska Aktuari förenings Tidskrift* was printed in four volumes. Since that time the three Scandinavian societies and the Finnish society (after its founding) have co-operated in publishing the *Skandinavisk Aktuarietidskrift*, which is thus the successor in both form and content of the previous publication. It is printed in four numbers (occasionally double numbers) each year, 1924 being the seventh year. Practically all the papers are in German, French or English, but most reviews of foreign literature, copies of actuarial examinations in the University of Copenhagen, Proceedings of the Meetings, etc., are in Danish. The papers are principally mathematical and of the highest standard. The most striking contributions to actuarial science are the numerous papers advancing the typical Scandinavian treatment of the higher mathematical theory of statistics, including Interpolation and Summation. The chief Editor is Dr. Reinh. Palmquist, *Skandinavisk Aktuarietidskrift*, Stockholm 16, Sweden.

OTHER ACTUARIAL SOCIETIES

BY

JAMES S. ELSTON*

Little information is available about various other Actuarial Societies. The ACTUARIAL SOCIETY OF AUSTRALASIA superseded the ACTUARIAL SOCIETY OF NEW SOUTH WALES about 1920. Papers presented at the monthly meetings from May to November are published in leaflet form. The INSTITUTO ARGENTINO DE ACTUARIOS was started about 1920 and has published *Anales*. The POLSKI INSTYTUT AKTUARJUSZY was apparently founded June 30, 1920 and has published a journal. No information is available about the ACTUARIAL SOCIETY OF JAPAN. The VEREENIGING VOOR DE VERZEKERINGSWETENSCHAP in Holland corresponds to the Deutscher verein für Versicherungs-Wissenschaft in Germany. Through 1919 it published seventeen volumes of the *Archief voor de verzekeringswetenschap* and since that time

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the *Versekeringsarchief*. The VEREENIGING VOOR LEVENSVERZEKERING has also until recently published *Jaarboekje*.

Several Actuarial Societies ceased to exist about the beginning of the World War. The MATHEMATISCH-STATISTISCHEN VEREINIGUNG DES ÖSTERREICHISCH-UNGARISCHEN VERBANDES DER PRIVATVERSICHERUNGS-ANSTALTEN had published *Mitteilungen* for several years. There had been a SOCIÉTÉ POUR L'ÉTUDE SCIENTIFIQUE DES QUESTIONS D'ASSURANCES organized at the end of 1908 in Russia. The ASSOCIAZIONE ITALIANA ATTUARI practically ceased to exist upon the establishment of the state monopoly of Life Insurance in Italy. It had published the *Bolletino* for several years.

REVIEWS OF PUBLICATIONS

RALPH H. BLANCHARD, BOOK REVIEW EDITOR

Elements of Business Statistics. Robert Riegel, Ph. D.
D. Appleton & Co., New York, 1924. Pp. xx, 549.

Until very recently "The lack of texts", as the author points out in his preface, "has been peculiarly felt in the teaching of 'business statistics'", and this is one of the best of the recent publications issued to meet this need. It is, as its title implies, an elementary text covering the application of statistical methods to business and economic problems. Only incidentally does it deal with the application of statistical methods to other fields, such as demography, biology, etc.

No claim is made for originality in subject matter but the work which has been and is being done in the field covered is comprehensively presented. After introductory chapters on the functions of statistics, the problems of collection, analysis and presentation of statistical data are comprehensively dealt with. The most recent work in this field has been carefully examined and, so far as the author feels justified, included. Indeed, considerable space has been taken up with the presentation of Dr. Watkins' Index of Variability and Index of Correlation, of the latter of which the author feels compelled to say (p. 419) "This method must as yet undergo the test of practice, and it is conceivable that various modifications may have to be introduced to allow for hitherto unforeseen circumstances." Whether a method for which such a reservation must be made should be included in a professedly elementary text is, perhaps, debatable. The incident is mentioned to show the up-to-dateness of the material.

The style is simple and lucid and all methods discussed are amply illustrated by charts, tables and examples. The problems chosen as illustrative examples are simple, in some cases so artificially so that the author feels impelled to warn students that the result cannot be taken as dependable, but the simple problem has been used to concentrate attention on the principle involved and to suppress detail. In only one instance does it seem that

this has been carried too far. We fail to find in the discussion of correlation a presentation of the short method of working from a correlation table composed of a double frequency distribution, the short method being presented only in connection with five pairs of values. We think the saving in time of the short method for that sort of problem is such that the method should be presented.

The book is obviously intended for readers without extensive mathematical training. Formulae are generally stated without proof, but foot-note references and references at the end of each chapter enable those desiring to investigate further to do so and to obtain exact mathematical proofs.

The author has departed from the traditional order of presentation in two respects. Graphical presentation has been given an early place because, as the author says in his preface, of the value of diagrammatic forms in explanation. But it is not clear why the subject of index numbers has been reserved for the closing chapters of the book, especially when it has been found necessary in discussing time series to point out that such series are often composed of index numbers.

Where the author has departed from the more usual terminology it seems to the reviewer that he has used good judgment. The fact that the average is a type is emphasized, and the term "measure of central tendency" which the reviewer has found very confusing to students has been discreetly pushed into the background. Likewise the use of "group" to designate frequency series and the reservation of the term "series" for time series, though it may lead to confusion in reading other references, is a move that should be followed.

Throughout the book are copious foot-notes citing not only other texts but papers in periodical literature in which are given proofs of formulae that are not reproduced, as well as discussion and comments on methods described. At the close of each chapter also adequate references are given for the guidance of students desiring to pursue the matter further. For the benefit of the reader of limited mathematical training or memory there is given, in an appendix, a brief explanation of the nature and use of logarithms and of the slide rule.

Despite the many merits of the book, there are some points at which, in the reviewer's judgment, improvement can be made

in a new edition. In view of the importance of the subject-matter, it would seem that Chapter XIV, "Trends, Cycles and Seasonal Variations," could profitably be considerably expanded. At least one method of finding seasonal variation which has distinct advantages, that based on comparison with a 12-month moving average recentered, is not discussed and the treatment of the link-relative method is more condensed than its importance seems to justify. This latter criticism may also be directed at the treatment of the mathematical fitting of trend lines. The reviewer does not agree with the author in all cases in his assertion that "Correlation is the causal relation between two phenomena, direct or inverse", unless by this he means to include the case of both phenomena being the result of a common cause.

There are other minor points on which we might not wholly agree but we have no desire to be captious. As we said at the outset, the book is one of the best elementary texts we have examined.

A. H. MOWBRAY

An Introduction to the Mathematical Analysis of Statistics. C. H. Forsyth. John Wiley and Sons, New York, 1924. Pp. viii, 241.

This is a book on mathematical statistics, written by a mathematician. The application of statistical methods in any field of science requires a combination training in the methods of statistics and in the principles of the science, and those of us who have had the science first often find our mastery of the mathematics insufficient to the task. We welcome, therefore, every attempt to bring the mathematics down to our level. The topics covered in this attempt are errors, finite differences, interpolation, gamma and beta functions, probability, averages, moments, the normal curve, the binomial series and correlation—one chapter to each. It is a good selection of topics which, if not all-inclusive, is all-important. The author has followed each important section in the development by extensive lists of problems and examples, which will add to the use of the book as a text from the standpoints of both teacher and student. The introduction states that a knowledge of the calculus is presumed and one may judge that some portions of the book presume a great deal—enough to belie the implication of "elementary" in the title.

The book leaves one with the sense of having viewed the promised land but never having arrived. Its main defect seems to be a lack of balance in presentation,—sometimes too much mathematics and sometimes not enough; now too elementary, now too advanced. The first chapter, for example, presents the subject of errors almost without use of a mathematical symbol, and while certain conclusions stand out clearly, the subject matter as a whole is not handled nearly so satisfactorily as in Bowley's text, for instance. The author apologizes, in the introduction, for including this chapter, as the book is written for students of statistics.

The chapters on finite differences and interpolation, on the other hand, offer, in brief space, a very clearly presented introduction to these topics. At the other extreme, the discussion of gamma and beta functions will be understood only by those well trained in the calculus.

The mathematical development in the chapter on averages is elementary but good. When, however, the author offers applications of averages with time series and discusses index numbers he is apparently on very unfamiliar ground, and actually misstates Fisher's conclusions as to weight bias: "If weights are selected proportional to the quantities of production of the commodities and if these weights vary from period to period it is known that the index numbers so obtained are affected by an upward bias (and a downward bias if a fixed set of weights are used)." (p. 107). The omission of this entire section would improve the chapter.

The same general criticism may be offered to the chapter on moments. The development of the subject is satisfactory; for an application he selects Persons' method of eliminating trend from a time series. The treatment here should have been a mere illustration, or should have been a more complete and more critical discussion of methods of eliminating trend. Persons' method of eliminating seasonal trend and of showing cycles is also described here, making the section, therefore, more than illustration, and yet not presenting the discussion critically.

The discussion of the normal curve is very satisfactory. After it has been derived, the two methods of fitting it to given frequency distributions are illustrated by examples. This is followed by least squares and probable errors. The latter is

introduced thus: "A slightly better measure [than the standard deviation] of such consistency [*i. e.*, of a set of observations] is given however by what is called the probable error." (p. 153)—a statement that is either wrong or meaningless. Another loose statement in this section should not pass unnoticed: "It can scarcely be emphasized too much that the principal means of obtaining a representative distribution is to make a large number of observations." (page 154)—yes, granted the data are homogeneous. Objection can also be raised to his use repeatedly of three times the probable error as the maximum range of error.

The discussion of the binomial series is one of the best parts of the book. It follows Arne Fisher very closely and takes most of its illustrations and examples from him. The last chapter, on correlation, is one of the most difficult in the book and is devoted principally to the mathematics of the subject. The defect here, if such there be, is in the condensation of so important a subject within such limited space.

BRUCE D. MUDGETT

Handbook of Mathematical Statistics. H. L. Rietz, Editor.
Houghton Mifflin Co., Boston, 1924. Pp. viii, 221.

The subject matter of this volume comprises methods of analysis of statistical data such as are "in a sense common to all fields of statistical inquiry." Eleven different authors have contributed to the result, these men being members of the *Committee on the Mathematical Analysis of Statistics of the Division of Physical Sciences of the National Research Council*, and the work was inspired, and incidental expenses connected with it paid, by the Council.

The list of authors gives promise of an authoritative pronouncement: H. L. Rietz, H. C. Carver, A. R. Crathorne, W. L. Crum, James W. Glover, E. V. Huntington, Truman L. Kelley, Warren M. Persons and Allyn A. Young. Anyone at all familiar with statistical and actuarial work will recognize in this list an array of well-known names.

The book contains twelve chapters, an excellent bibliography covering the same field, and a table of probability functions. The chapters cover in order (1) mathematical memoranda,

(2) frequency distributions, averages and measures of dispersion, (3) interpolation, summation and graduation, (4) curve fitting, (5) random sampling, (6) Bernoulli, Poisson and Lexis distributions, (7) frequency curves, (8) simple correlation, (9) partial and multiple correlation, (10) correlation of time series, (11) periodogram analysis, and (12) index numbers.

The title of the book indicates that the intention was to parallel, in scope and method, the familiar type of handbook common among the engineers. The various chapters, however, do not follow the method of presenting formulae entirely without explanations. In general there is little attempt at derivation of the formulae given and few proofs offered. The book therefore is not a proper one for the beginner. It should find its greatest usefulness among those who are well trained in mathematics and who have some familiarity with the field of statistical methods. For such as these many of the chapters offer excellent summaries of what is available in the way of methods of analysis and the bibliography furnishes the guide to further study.

There is, however, a considerable degree of divergence in the amount of explanation given by the various authors. For instance, chapters one and four, written by Professor Huntington, are almost entirely without explanations. The Gamma Function in chapter one is treated in twelve lines, the Beta Function in four, probability formulae in slightly more than one page! His chapter four, on curve fitting, is about equally brief. Both Professor Rietz and Professor Glover, on the other hand, have explained and have illustrated topics treated by them in chapters two, three, five, six and eight in such way as to give these chapters something more than a "handbook" character. The chapter on correlation of time series by Professor Persons describes essentially the methods used by the Harvard Committee on Economic Research in measuring and isolating trend, seasonal, and cyclical influences. The topic might well have been considered from a more general point of view. The final chapter, on index numbers, by Professor Young is a very excellent statement of the subject for a fourteen-page treatment. The bibliography, by Professor Crum, while covering fourteen pages, is said by its author to be confined to those subjects treated in the book. It appears to be a very thorough piece of work.

BRUCE D. MUDGETT

The Essence of Life Insurance. William Breiby. The Spectator Co., New York, 1924. Pp. xiv, 167.

The value of an elementary text book is, of course, to be judged more by its success in getting its contents across than by any originality in the contents themselves.

Other volumes covering the theory and practice of life insurance for the beginner have very frequently been of a primer type, and have assumed practically an entire ignorance of insurance on the reader's part; then by profuse and elaborate concrete illustrations, figuratively, at least, in words of one syllable, they have tried to bring out the essentially co-operative nature of insurance and to build up the elementary principles of life insurance computations. Such books have usually tried to emphasize their points by much reiteration, as might be expected in a book which is avowedly written down to its readers. The result has been that the authors have had to choose a few cardinal principles and hammer away at these or expand their work to cover several hundred pages.

Mr. Breiby has adopted a slightly different method of attack, as the title of his book would imply. He has aimed to cover only essentials and has included in his essentials not only the basic principles of scientific life insurance but modern developments such as disability clauses, accidental death benefits, sub-standard insurance and group insurance. These various subjects are all worked up in a clear, non-technical fashion, but obviously the plan of covering the essence of a business as comprehensive as life insurance in 167 pages demands that a great deal of detail be pruned away. For instance, the economic and social value of life insurance is covered in the first page and a half, and sub-standard coverage is covered in ten lines.

The author devotes the first two short chapters to the purpose of life insurance, classes of insurance organizations and the basic kinds of insurance contracts. Three chapters are devoted to a scientific exposition of the basis for rate making and for reserve calculations, another to loading, dividends and cash values, another to the policy contract itself, and one to miscellaneous points, such as medical examinations, claim settlements and investments.

The author has inserted in his demonstration ten complete tables which either serve for the calculation of illustrative pre-

miums or as a check on the calculation by carrying a hypothetical fund from age 35 until death or maturity. These elaborate tables at first glance make the demonstrations seem more formidable than they really are. Other books have often given only abridged calculations or have assumed the applicant to be age 90 in order to shorten the process. Mr. Breiby has evidently felt that his readers would find the demonstration more convincing if applied to an actual age found in practical work and if the calculation were shown completely. On the other hand, in Chapter XI, which is purely descriptive of miscellaneous points, certain subjects such as payment of claims and investments are touched on so briefly in one or two sentences that the little that is said would seem almost too obvious, even to a layman, to need being mentioned at all.

The book shows its up-to-dateness by not stopping with these various fundamental conceptions and by finding room to treat valuation with allowance for initial expense, the various additional developments mentioned previously, wholesale insurance, and accident and health insurance. Insurance in connection with savings banks is also listed. Apart from the merits of the question it would hardly seem that, at the present time, this phase of the business is of sufficient importance to warrant its being listed as belonging to the essence of life insurance.

A valuable chapter is inserted on the history of mortality tables. The reader will normally draw the correct inference that each mortality experience is a closer approximation to the truth than its predecessor and that no one table is, or ever was, infallible. The idea currently held is often that "the insurance companies know exactly how many people are going to die each year".

A chapter is devoted to uttering the usual necessary emphatic warning against that stumbling block, the expectation of life; then, as the book is primarily for agents, the last chapter contains some general remarks to the agent and closes with a list of maxims, telling fourteen things to do and fourteen things not to do.

As the book is condensed and does not present facts in sugar-coated form, it may seem somewhat forbidding to the beginner in spite of its elementary nature. For the agent or for any one who desires to go into the essentials only of life insurance it may well prove a useful book to read and own after a background has been secured through personal experience or individual instruc-

tion. As a reference book from which to draw concrete proofs of some statement of which the agent may not have all the details at his finger tips it may easily come in handy on some critical occasion.

The title of the book might perhaps better have been "The Essence of Life Insurance for the Agent" as there are many points not covered, such as the legal point of view regarding life insurance, the question of taxation and government supervision, the various systems of home office organization and the interpretation of annual statements, which might well be classified as essentials by the home office man and are not entirely devoid of interest for the field man. However, the chief problem for the author of a book such as this is undoubtedly not what to insert but what to leave out and it is quite probable that he has already considered most of these points with a good deal of deliberation.

WARD VAN B. HART

Practical Calculus for Home Study. Claude I. Palmer. McGraw-Hill Book Company, New York, 1924. Pp. xx, 443.

The aim of this book is to give a man with limited knowledge of mathematics the ability to use the calculus as he needs it in his work. The author does not attempt to make the subject easy, but, as he says, "it can be made plain." This result has been accomplished through the use of much explanatory matter and an unusually large number of graphs. Practical illustrations and explanations have been used wherever necessary to make difficult ideas plain. Throughout the text the explanations are exceptionally clear and the graphs comprehensive. Many suggestions and references are given to aid the student in reviewing algebra, trigonometry and analytic geometry, so that he may have a clear idea of the applications of the calculus. The problems are drawn chiefly from the experiences of everyday life and from the applied sciences. There are a large number of exercises carefully graded so as to increase the readers ability to use the calculus. A feature connected with many of the problems is a hint which, while showing how to "crack the nut", leaves the reader to dig out the meat for himself.

In chapters I, II, and III the author presents the definitions and fundamental ideas underlying the calculus. Change and variation, constants and variables, functions and increments are re-

lated to the facts of everyday experience. The theory of limits and the theory of differentiation are both worked out in the third chapter.

Chapters IV to VIII, inclusive, are devoted to the differentiation of algebraic functions, geometric applications, maxima and minima, differentials and rates of change. All of these are presented in a simple manner without sacrificing the more difficult concepts.

Chapter IX is devoted to integration of algebraic expressions and is strategically placed ahead of the discussion of transcendental functions, since it holds the interest of the student and enables him to grasp the beauties of the calculus in the field which he is best equipped mathematically to comprehend. The discussion of the transcendental functions begins with a unique analytical proof that the derivative of $\sin x$ equals $\cos x$, followed by the usual one based upon the method of limits. The power, exponential and periodic functions have been stressed in the three chapters on transcendental functions. The discussion is particularly good in the application to the phenomena of the natural sciences. The eleven succeeding chapters are devoted to the usual subjects covered in any standard text. No attempt is made to omit difficult points. The author uses many concrete illustrations and explanations to develop them. The remaining chapters of the book are employed to develop the essential ideas of analytic geometry, formulas and tables. Over two hundred integral formulas are listed followed by a summary of all of the formulas used in the text. Trigonometric functions and formulas are listed. A table of logarithms to base e , while not necessary, would very appropriately complete the tables given. Twenty pages are devoted to a complete set of answers.

The conscientious reader can learn the calculus by studying this text and will feel that the author has achieved the purpose so aptly expressed in the title.

FLOYD E. YOUNG

Credit Insurance. Saul B. Ackerman and John J. Neuner.
The Ronald Press Company, New York, 1924. Pp. 98.
(The Spectator Company, sole selling agents to the insurance business.)

Credit insurance is a class of business undertaken by very few companies and, as written in America, understood thoroughly

by comparatively few men. These men have grown up with the business and have, figuratively, rocked the infant in its cradle, romped with it in its youth and now are ready to confess that the infant has not grown to the size and health of other classes of insurance. By the health of other classes is meant the certainty that the volume will produce definite results at least within a narrow circle. Credit insurance is a hazardous class. In years of business depression and panics, which occur in cycles, abnormal losses eat up whatever profits may have been accumulated in the years when economic conditions are good.

The book written by Messrs. Ackerman and Neuner is pioneer work. It shows that the study of the subject has been quite thorough. It will be an aid to those now fairly familiar with the class and particularly to those who are now engaged in selling it. To the uninitiated it will explain in a general way some of the technical factors entering into the rates but will possibly have a tendency to confuse the purchasers of policies in method of adjustment of claims. The book might mislead prospective purchasers in their idea of merit rating. This subject is covered on page 29 and, in effect, it is said that, irrespective of any other conditions, if the applicant chose a certain average loss experience he would be entitled to a certain reduction in his Normal Loss. It is stated, further, that the ascertained Normal Loss may be adjusted for extraordinary conditions, such as panic or depression, hazard and unfavorable loss experience, but if the Normal Loss is further adjusted for these Extraordinary Conditions, which on their face appear to be unfavorable, it could not be considered a merit rating.

Taken as a whole the book is well worth the effort and should be read by the student of credit insurance and, since it is one of the very few books on the subject and is pioneer work, it is hoped that the authors will not stop with it. Credit insurance is still in its cradle days and any work that will aid it in keeping step with the other members of the Casualty family and with commerce will be good work.

JOHN J. PALLAY

Workmen's Compensation. E. H. Downey. The Macmillan Company, New York, 1924. Pp. xxv, 223.

This contribution of the late Dr. Downey to the study of the workmen's compensation problem might well have been entitled

"a criticism of workmen's compensation in the United States". It does not pretend to be a text covering all details of compensation practice. It does, in a brief and pointed analysis, explain the principal features of the American system of compensation, and records clearly the author's opinions. After a brief chapter on the social cost of industrial injuries which "in the main, are attributable to inherent hazards of industry" (p. 8), he assumes the principle that the test of the best solution for the problem of industrial accidents is that "of minimum social cost: that distribution of unavoidable losses is to be preferred which imposes the least hardship upon individuals and results in the smallest diminution of the community's economic assets." (p. 9). Of the principle of compensation, he says "This method secures the widest, the least burdensome, and perhaps on the whole the most equitable distribution of the cost of industrial accidents and disease." (p. 15).

"..... the compensation system should comprise all industries, all persons employed therein and all personal injuries which arise in the course of industrial pursuits." (p. 21). To readers familiar with the provisions of American compensation laws, this statement in itself constitutes a clear-cut suggestion for improvement. After discussing the deficiencies of such laws, the author states that "compulsory compensation should cover all employments, all employers, all employees, and all injuries, whether by accident or disease, which arise in the course of employment. The compulsory system should be supplemented by effective voluntary insurance for self-employed workmen." (p. 31).

In the chapter on the scale of compensation benefits, Dr. Downey pays his respects to the limitations of present compensation acts. Throughout, he argues for a much more liberal treatment of injured workmen than now prevails. In particular, he attacks the long waiting periods, maximum weekly rates of compensation, and "niggardly limits upon medical aid". Here again, "The guiding principle for the determination of compensation benefits is that of least social cost." (p. 35).

The chapter on workmen's compensation administration is less devoted to a consideration of present conditions in administrative work than to a statement of the methods and organization

which the author believes best suited to the proper carrying out of the compensation principle. Adequate personnel, scientific methods, and vigorous enforcement of the law are enjoined.

To members of the Society, the discussion of compensation insurance is perhaps the most interesting portion of the book. The chapter devoted to this subject is rich in material for quotation. It is equally rich in material for controversy. It should be read by men of all faiths and by those of none. The orthodox will be confirmed in their orthodoxy, heretics will find support for their heresy, while the open-minded will find much to stimulate and enrich their thought. The author indicates that there are but two ways in which compensation obligations can be securely met. "Either the employer must insure his liability in a stable, solvent and strictly supervised insurance carrier or he must himself create a trust fund, with adequate surplus and reserves segregated from other assets and devoted solely to the payment of indemnity for work injuries. Such employer's funds should be subject to the same public supervision and examination as other insurance carriers and held to like standards of solvency." (p. 83). "Monopolistic insurers", he says, "may safely adopt either the reserve or the assessment premium plan or any combination of the two." (p. 83). As was to be expected, considerable attention is devoted to classification, "A classification which looks to the more fundamental features of process, equipment and materials will establish, at most, one or two hundred risk classes," (p. 88). Division of payroll in rating individual plants is condemned for three reasons: "(a) The risk classes so obtained are apt to be a-typical. (b) The application of widely different premium rates to the several components of the same business enterprise tempts both employers and competing insurers to juggle payrolls. (c) The correct assignment of industrial injuries to separate risk classes in the same establishment transcends the statistical competence of any extant insurance carrier." (pp. 89-90).

The author next addresses himself to the problems of rate making. A few quotations will indicate his point of view. "The volume of exposure. required to establish the frequency and cost of fatal and permanent injuries will vary inversely with occupational hazard but cannot well be less than ten thousand and employee years nor comprise fewer than one thousand com-

pensable injuries." "Mere volume of exposure, however large, is insufficient for rate making unless the experience covers a series of years." (p. 93). "What is called country-wide experience, however combined into a total, is more likely to mislead than to inform. Yet for small states there is not other means of obtaining an adequate exposure for rate making." (p. 95). "If based upon a thorough analysis of tangible hazards the rating schedule may be made a very useful means both of refining risk classes and of promoting industrial safety. Less can be said for experience rating." (p. 96). "For all but the very largest employers experience rating produces charges and credits which have no relationship to the probabilities of compensation cost. . . . Experience rating, in short, is chiefly valuable as a competitive sales argument." (p. 97).

Turning to a discussion of the relative merits of various types of insurance carriers and their regulation, the author's point of view is developed along the following lines: "Spurious arguments drawn from irrelevant social theories are made to do yeomen duty in the cause of propaganda and the pertinent facts are obscured by the dust of controversy." "Monopolistic insurers have an obvious advantage in economy of operation". (p. 98). "The extreme showing of economy made by many American state funds has been secured at some sacrifice of efficiency". "But a really efficient administration of a large insurance monopoly would certainly not cost more than ten to fifteen per cent. of benefits under an adequate scale." (p. 99). "Much of the waste exhibited in contemporary American and British practice can be eliminated without suppressing competition. agents' commissions can well be limited to ten per cent. twenty-five per cent. of premiums under an adequate scale of benefits should be a sufficient expense provision for stock companies." (p. 100). "Excessive cost of competition under existing conditions is a persuasive argument in favor of monopoly." (p. 101). "In actual performance, however, there is little to choose. between state and private insurance. Illiberal settlements, narrow definitions of industrial injury and the denial of compensation on technical grounds appear to be as prevalent in Washington and West Virginia as in New Jersey and Alabama; the adjustment of claims is as disgracefully tardy in Ohio as in Pennsylvania." ". the

staffs of our monopolistic state funds are universally undermanned." (p. 103). "For the evil of insufficient appropriations the most certain remedy is to charge the maintenance of the fund against its premium income and to relieve its budget from legislative control." "In risk classification, in rate making and in accident prevention the monopolistic state funds have made little use of their rich opportunities." (p. 104). "The comprehensive failure of the exclusive state funds in these particulars betrays an all round inefficiency." "A monopolistic mutual would retain all the advantages of a compulsory state fund. . . . while it would be free from that political spoilsmanship which has greatly handicapped the management of state insurance funds." (p. 105). ". . . .the proved advantages of monopoly are limited to economy and security." (p. 106).

". . . .quality and scope of administrative supervision are vastly more important to the efficient working of the compensation system than the particular scheme of insurance in vogue." "Adequate reserves for compensation liabilities must be based upon individual claim valuation." (p. 107). "Regulation which seeks to restrain competitive abuses and extravagance without abolishing competition must control total premium rates, total expense loading, acquisition or selling costs and the classification and rating of individual risks." (p. 110). "The most effective agency yet devised for this purpose is the compulsory rating bureau operated by insurance carriers under public supervision." (p. 111). ". . . .supervision of compensation insurance should unquestionably be vested in the board, commission or department which administers the compensation law." "Insurance departments as currently organized have neither the industrial knowledge and contact nor the social viewpoint necessary to supervise workingmen's insurance in the interest both of employers and of beneficiaries." (p. 112).

A brief chapter is devoted to the prevention of industrial injuries, in which it is indicated that the removal of hazards by engineering revision is most important. "Next to engineering, supervision is the principal means of promoting safety in the mines. Two daily inspections. . . .will accomplish more for the correction of careless practices than a multitude of leaflets, bulletin boards and safety rallies." (p. 126). After considering the possibilities for prevention in various industries and processes,

the author arrives at the conclusion that ". . . . an adequate scale of compensation benefits is the prime requisite for the prevention of work injuries. If industry bore three-fourths instead of 25 per cent. of the cost of occupational injuries it would be worth the employer's while to spend time and money upon preventive measures. If the average cost of a fatal accident were \$10,000 and the average indemnity for loss of a hand were \$12 a week for life, much would become practical that is now deemed visionary." (pp. 137-8).

The last chapter, which is devoted to a general discussion of the American compensation system, resolves itself into a discussion of its defects. To quote again:

"To summarize this catalogue of shortcomings: the American compensation system does not yet include all of the United States nor does it cover railway or marine transportation, agriculture or domestic service; the scale of benefits is grossly inadequate, needlessly variable from state to state and contains many unintelligent limitations and exclusions which work a hardship out of all proportion to the monetary saving; the administration of the laws permits much avoidable litigation and much unnecessary delay in the payment of claims; the prevalent form of insurance gives no sufficient security for future payments and public supervision of private insurers has failed to obtain either appropriate risk classes or reasonable rates. By comparison with any acceptable standard for the indemnity of work injuries our compensation laws are poor indeed. Measured, however, by the situation which obtained ten years ago, the advance is very great. The law of negligence and all its works has been swept into the discard and in its place has emerged the principle that industry shall bear the cost of industrial injuries. That the new principle is still very imperfectly realized in practice is less significant than its universal acceptance in theory: no far reaching reform was ever carried out until its justice and expediency had taken hold upon the general conviction. Adequate compensation benefits will be attained as fast as public opinion is educated to the necessity thereof. Already the earlier laws have repeatedly been amended upwards and the process gives every promise of continuing for at least another decade. High benefits are the prime desideratum, for all things else will follow thereupon. High benefits will enforce curative treatment, re-training and prevention; with high benefits, also, the need of efficient administration and of sound insurance at reasonable cost will be irresistibly apparent." (pp. 159-160).

Each chapter of the book is followed by valuable notes which, it seems to the reviewer, would have been of greater service had

they been inserted on the pages of the text to which they apply. A useful bibliography is added.

Adequately to discuss the problems and to evaluate the conclusions presented in this book would require a larger volume and life-long experience and study. To make any attempt in that direction within the scope of a review would be quite fruitless. The reviewer, therefore, limits himself to urging every one to read the book. It is a worthy product of one of the most incisive thinkers, and certainly the most facile writer, on the subject of workmen's compensation.

RALPH H. BLANCHARD

CURRENT NOTES

WILLIAM N. MAGOUN, CURRENT NOTES EDITOR

MISCELLANEOUS PUBLIC LIABILITY AND PROPERTY DAMAGE
LIABILITY INSURANCE

A new Manual covering the miscellaneous lines of Public Liability and Property Damage Liability insurance has been published by the National Bureau of Casualty and Surety Underwriters, effective January 1, 1925. The changes made affect the following lines of insurance in all sections of the country:

Owners', Landlords' and Tenants' Public Liability and Property Damage Liability

Theatre Public Liability and Property Damage Liability

Residence and Farm Employers' and Public Liability and Property Damage Liability

Elevator Public Liability, Property Damage Liability and Collision

Teams' Public Liability and Property Damage Liability.

The revision marks the first comprehensive review which has been made in several years of the rates for these forms of Liability insurance and is based upon the largest volume of statistical data covering these lines ever compiled for rate making purposes.

The rates for Owners', Landlords' and Tenants' Public Liability insurance were revised on the basis of classification experience covering the three latest available policy years together with the latest available loss ratio experience. These rates for the first time were made on a territorial basis in recognition of the fact that liability conditions within similar classes of risks differ materially in the various sections of the country. The general level of rates for this line of insurance for the country as a whole was increased 28% as a result of the revision. In Greater New York where the companies have suffered exceptionally heavy losses, the rate level was increased 190%; in the remainder of the country the increase in rate level was 1.5%. The rate changes were not uniform for all classifications; in many cases the rates for individual classifications were increased, but substantial reductions were also made. Because of the constantly changing conditions in Greater New York, the writing of Owners', Landlords' and Tenants' insurance in that

city for a longer period than one year was discontinued. The Bureau also established rates for Owners', Landlords' and Tenants' Property Damage Liability insurance covering the same classifications as apply to the collateral Public Liability line.

The rates for Theatre Public Liability insurance were not changed for the country as a whole with one exception. In Greater New York the level of rates for this line of insurance was increased 61%, indicating again the tendency for liability loss costs in that city to greatly exceed the costs in the remainder of the country. The experience used as a basis for the revision of Theatre Public Liability rates covers classification experience for the five latest available policy years. The Merit Rating Plan for Theatre Public Liability risks, known as the Theatre Liability Rating Schedule, was revised concurrently with the rates and this schedule was adopted for use in Greater New York (where it had not previously applied) and also in the remainder of the country.

The rates for Elevator Public Liability insurance were established for the first time on a territorial basis as in the case of Owners', Landlords' and Tenants' Public Liability. Several changes were made in the Elevator classifications and the rate relativities between classifications were adjusted in accordance with the indications of the experience. The general level of rates for this line of insurance for the country as a whole was not changed. However, in some states the rate level was increased and in other states it was reduced. The Elevator rates were revised on the basis of classification experience for the three latest available policy years together with the latest available loss ratio experience. Following a thorough-going investigation and study of the problem, a simple scheme of rate discounts was adopted applicable to elevators equipped with approved devices of Elevator Hoistway Door Interlocks or Elevator Car Gate Electric Contacts. The rate discount allowed for Interlocks is 10% and for Car Gate Contacts it is 4%, these credits being cumulative. In line with the action taken with respect to Owners', Landlords' and Tenants' insurance, the writing of Elevator policies in Greater New York for a longer period than one year was discontinued. The Bureau also established rates for Elevator Property Damage Liability and Elevator Collision insurance. These rates differ by classification but

there is no territorial differential in the rates for individual classifications.

The rates for Teams' Public Liability and Property Damage Liability insurance were revised on the basis of classification experience for the three latest available policy years together with the latest available loss ratio experience. The territorial system of rating Teams' risks was retained. The general level of rates for Teams' Public Liability insurance for the country as a whole was increased 34% and for Teams' Property Damage Liability insurance the rate level was increased 15%. The rate level changes for both lines of insurance vary in some instances by state to a considerable degree from the country-wide average. A complete new set of classifications was established, entirely independent of the classifications for Manufacturers' and Contractors' Public Liability insurance which were used in the past as a basis for writing Teams' risks.

Complete revisions were made of the underwriting rules for the several lines of Public Liability and Property Damage Liability insurance referred to above, and in addition for Manufacturers' and Contractors', Owners' or Contractors' Protective and Residence and Farm Public Liability and Property Damage Liability insurance.

M. ACKER

AUTOMOBILE INSURANCE

Among the recent developments in the field of automobile insurance, which possess more than ordinary significance from the practical as well as the theoretical standpoint, are the following:

Revision of Rates. The 1925 Automobile Casualty Manual issued by the National Bureau of Casualty & Surety Underwriters presents revised public liability and property damage rates for commercial cars which are expected to decrease the aggregate liability premium by 8% and increase the property damage premium by 17%. Aside from the usual realignment of the territorial divisions attendant upon a general revision, the new rates reflect a radical departure from previous rates insofar as the rate class and load capacity differentials are concerned. Separate rates for the three load capacity classes, (Heavy, Medium

and Light) for trucks were first established early in 1920 and the lack of dependable data separated for these divisions necessitated a generous application of the element of judgment in developing the differentials finally decided upon at that time. It is evident now from an analysis of the data since collected that the judgment exercised then erred on the conservative side because the gradation in rates from heavy to light trucks has clearly been inadequate. Or, putting it differently, the experience indicates that the rates previously charged for heavy and medium trucks were inadequate, while the rates charged for light trucks were slightly more than adequate. The following figures for all rate classes combined, for policy year 1923, afford an explanation of the need for such differentials by showing that both claim frequency and claim cost ascend steadily from light to heavy trucks:

Load Capacity	Claim Frequency		Claim Cost	
	P. L.	P. D.	P. L.	P. D.
Heavy.....	15.7	70.1	\$361	\$61
Medium.....	9.2	41.6	355	51
Light.....	6.3	25.0	275	40

It should be stated that the differentials in the 1925 rates represent a compromise between those previously existing and those required by the experience data, so that still further modification is to be expected provided subsequent data bears out the indications evidenced by the data for past years.

A year ago the private passenger car rates were revised effective January 1, 1924, the net effect on the premiums being a reduction of 6% for public liability and an increase of 9% for property damage. In spite of the precedence given this year to a revision of commercial car rates, the latest passenger car experience was reviewed in a general way. As a result the public liability rates were deemed adequate and not disturbed, but the property damage rates were increased further in the higher rated territories so as to produce a net effect country-wide of an increase of 6% in premiums.

Merit Rating of Individual Drivers. During the past year and a half, the Bureau companies have on two different occasions given serious consideration to the feasibility of adopting one of several

possible methods of recognizing careful driving on the part of individual operators of automobiles. In the main the plans advanced so far are all based on the same general principle, their differences being confined largely to minor details. The principle is that the companies ought to give tangible recognition of the careful driving of individual assureds by allowing a reduction in premium for the insurance carried, and thereby furnishing a real incentive for more careful driving which ought to result in a reduction in the number of automobile accidents. For example, one of the plans proposed is, briefly, that each individual automobile owner who operates his car for one year without having an accident resulting in injuries to persons, would receive a discount of 10% from his premium for public liability insurance for the following year.

It is not possible here to describe the plans in detail or to present the arguments in support of and in opposition to them. It is worth while noting, however, that while this is the first time that serious consideration has been given in this country to the principle, it has been tried out in at least one European country, viz., England. The consensus of opinion of those familiar with the experience of the companies using the particular plan in force there, seems to be that it is not entirely satisfactory. In fact, some of the companies would like to discontinue it but apparently cannot because of difficulties always encountered in withdrawing any plan which gives reduced rates to certain assured.

Although none of the plans so far advanced has proved to be acceptable to all of the Bureau companies, the very fact that careful thought has been given the whole matter is one piece of concrete evidence of an honest attempt on the part of the companies to do their bit in endeavoring to reduce automobile accidents and it should be recognized as such.

One interesting aspect of the immediate results of adopting any of the plans may be illustrated by calculating the effect of the plan previously described briefly on the present rates. The average public liability rate for private passenger cars all over the country is \$30 and the average claim frequency is .05 or 5 claims for each 100 cars insured for one year. If the present rates are correct, the companies must continue to collect \$30 per car

until such time as the experience data shows an improvement either because of the application of this plan or for any other reason. That being true, the adoption of the plan would require an adjustment of the present rates because 95% of the assured would be entitled to the preferential rate of 10% less than Manual.

$$(.95 \times .90 \times \$A) + (.05 \times 1.00 \times \$A) = \$30$$

$$A = \$33.15$$

The level of the present rates would need adjustment upward, therefore, by $\frac{\$33.15}{30.00}$ or 1.105. The 5% of assured having accidents would pay \$33.15 or \$3.15 more than before and the 95% of assured not having accidents would pay $.90 \times \$33.15 = \29.84 or \$.16 less than before.

The other plans produce similar results although some are not quite so unfavorable. The fact that none of the plans has met with the approval of a majority does not mean that the matter has been dismissed. Neither does it mean that the majority are opposed to the general principle if it can be embodied in a plan which will evade the objections raised and the practical difficulties anticipated in connection with the other plans.

National Conference on Street and Highway Safety. In December, 1924, Secretary of Commerce Hoover called the first of the formal Conferences on Street and Highway Safety. Prior to that date eight committees composed of experts, representative of the different groups interested in the problem of reducing vehicular accidents, qualified to assist materially in solving the particular phase of the general problem assigned to each committee, had been working diligently for a period of about six months. Each Committee had a reasonable amount of time to determine facts, analyze for causes, study remedial measures and their varying effectiveness, and draw up a written report embodying its findings for the main body of the Conference. As a result the Conference was able during the two day session to devote most of its time to considering the relative merits of the various recommendations as to ways and means of reducing accidents.

Since it was evident in the beginning that a vast majority of the highway accidents are in some measure due to the use of auto-

mobiles, it is not surprising that the automobile received considerable attention. Data and information on automobile accidents, their causes including weather and road conditions, traffic regulation, licensing of operators, safety work, etc., were collected and studied. This, together with a mass of information on the other aspects of the accident situation, formed the basis of the conclusions drawn and the recommendations made with the approval of a majority of the representatives at the Conference.

Of course, the suggestions of the Conference are merely suggestions because it is not possible for any national organization to put them into practice. The control of vehicles and the use of the highways is a matter for state and city regulation. The principal functions of the Conference, then, are to disseminate as widely as possible the knowledge and experience it has gained so far, and to urge the adoption by all states and cities of its suggestions for reducing accidents. In this way all persons interested work in an organized and efficient manner with a definite program in mind, and the corrective measures when adopted will be as nearly uniform as possible. To this end the reports of the individual committees as well as the report of the proceedings at the first meeting of the Conference as a whole, have been printed in pamphlet form and distributed among the members of state legislatures and many groups interested in accident prevention.

The organization of the Conference is being continued and the second meeting will probably be called in the near future. The committees are continuing to function and meet as the occasion demands. Sufficient time has not elapsed to show whether these efforts will achieve an appreciable and permanent reduction in the annual toll taken by vehicular accidents, but it is hoped that they will. If not, then it remains to be seen what the next step in the direction of prevention will be because some degree of prevention is the only correct answer to the problem.

Compulsory Insurance. The agitation for compulsory automobile insurance in one form or another seems to be continuing almost unabated in spite of the fact that up to the present every bill on the subject introduced in the legislatures has failed to pass. During the last twelve years legislation of this kind has been attempted at least once in thirty-seven of the states and in the United States Congress. It is only during the last two or three

years, however, that the movement has gained real headway. During the year 1924 the legislatures in the following states were interested in the subject:

Arkansas	Nebraska
Connecticut	New Jersey
Colorado	New York
Georgia	Ohio
Illinois	Pennsylvania
Indiana	Rhode Island
Maine	South Dakota
Massachusetts	Tennessee
Michigan	Texas
Minnesota	Vermont
Missouri	Virginia
Montana	Wisconsin
United States Congress	

In Massachusetts, New Jersey and Pennsylvania, commissions appointed to investigate the whole question are being continued and are expected to make further reports to their respective legislatures.

Needless, to say, the principal purpose of this movement is to make certain before a license is granted to operate automobiles that the operator will be able to make some compensation for accidental injuries or damage to persons or property. In the beginning many of the proponents of compulsory insurance believed that it would reduce the number of accidents and unfortunately some still think so. The insurance companies being experienced in automobile insurance matters are often looked to for expert advice and called upon to attend hearings, give opinions, information, etc. The companies are not unwilling to serve in that capacity provided it is definitely understood that they are neither in favor of nor opposed to compulsory insurance. In other words, the companies have after giving the whole matter very careful consideration decided to adhere strictly to a neutral position except where any compulsory insurance scheme is coupled with a monopolistic state fund. Aside from the question of whether or not the companies believe in compulsory insurance, they feel that they cannot advocate it because they would be open to the accusation of favoring legislation which would under

normal conditions result in an increase in their business. Neither can they oppose it because they would be accused of impeding social progress in order to satisfy selfish motives. The companies do, however, oppose monopolistic state funds, and will undertake to correct misrepresentation of facts by proponents of compulsory insurance.

A committee of nine, representatives of companies and agents, was appointed some time ago to study the whole question but more particularly the relation of the companies to it. Literature setting forth the position taken by the companies may be obtained from the Workmen's Compensation Publicity Bureau.

In some respects this situation is similar to the situation on Workmen's Compensation legislation as it existed some years ago. It will certainly be interesting to observe future developments especially if some one state enacts such legislation without establishing a state fund. The probable effect on rates of requiring every car to be insured is in itself worthy of intensive study.

E. E. ROBINSON

BURGLARY INSURANCE

The most extensive tabulation of burglary statistics ever attempted was made by the National Bureau of Casualty and Surety Underwriters during 1924. This tabulation was composed of the experience of twenty-five members and covered the policy years of 1921 and 1922 completed as of December 31, 1923.

On the basis of this tabulation numerous rate changes were adopted. The rate changes were mostly territorial although a few class rate changes were made. A new classification for fire-proof safes bearing an Underwriters Laboratories' Label, Class T-20, was adopted. The rate for this class is 20% lower than the rate for the ordinary fire-proof safe.

The members of the National Bureau of Casualty and Surety Underwriters have adopted the American Bankers' Copyright 1925 Bank Burglary and Robbery Policy as their standard form. This policy was drawn by a joint committee consisting of the Insurance Committee of the A. B. A. and a special committee representing the National Bureau.

Because of the difficulty of the individual safe deposit box renter in obtaining the specifications of the equipment of the bank from which the box was rented, a rate for this class of insurance

without warranting the specifications was adopted. As the experience for this class of business has been good, a low rate was promulgated.

Heretofore, it was not permissible to divide insurance under a Mercantile Stock Policy to cover on different classes of merchandise. A new plan has been adopted that will permit of the writing of divided insurance in a limited manner.

L. H. CARR

PERSONAL NOTES

Dr. L. W. Hatch resigned the position of Manager of the State Insurance Fund in the New York State Department of Labor on January 1, 1925, and was appointed on the same date Director of the Bureau of Statistics and Information in the same department.

Mr. William G. Roeber has been appointed Assistant Actuary, of the National Council on Compensation Insurance.

Walter S. Bucklin is now President of the National Shawmut Bank of Boston.

James E. Flanigan, formerly Actuary of the Bankers Life Company has been appointed Agency Manager of that company at New York City.

Charles H. Franklin, previously Manager of the Casualty Department of the Northwestern Casualty and Surety Company is now Assistant to the Vice-President of the Compensation and Liability Department of the Continental Casualty Company.

Olive E. Outwater resigned her position as Assistant Actuary of the National Bureau of Casualty and Surety Underwriters and is now Actuary of the Ladies of The Maccabees.

W. Norbert Wilson is statistician of the State Compensation Insurance Fund of California.

W. P. Comstock formerly Statistician of the Continental Casualty Company now occupies the position of Statistician of the London Guarantee and Accident Company.

Evelyn M. Davis has resigned her position as Statistician of the Utilities Mutual Insurance Company and is now with Woodward, Fondiller and Ryan, Consulting Actuaries.

Joseph Linder has resigned his position as Assistant Actuary of the Hartford Accident and Indemnity Company and is now an Associate with Woodward, Fondiller and Ryan.

Frank A. Fleming is now the Actuary of the American Mutual Alliance.

S. D. Pinney has been advanced to Actuary of the Compensation and Liability Dept. of the Travelers Insurance Co.

Barrett N. Coates has established an office as Consulting Actuary at 603 Dividend Building, San Francisco, California.

W. H. Burhop is now Assistant Manager of the Employers Mutual Liability Insurance Co.

Carl L. Kirk has been appointed Assistant Statistician of the Zurich General Accident and Liability Insurance Co.

OBITUARY

DAVID PARKS FACKLER

Born, April 4, 1841

Died, October 30, 1924.

David Parks Fackler, one of the founders of this Society and the one who proposed the organization meeting of the Actuarial Society of America, passed away in Richmond, the capital of his native state.

Graduated from the College of the City of New York at the age of 18, Mr. Fackler's whole business life was devoted to the actuarial profession. He entered the actuarial department of The Mutual Life Insurance Company of New York soon after graduation, later resigning to become a consulting actuary. In the latter capacity, he was one of the most prominent actuaries in the country, and one of the most highly respected.

In 1862, when he was 21 years of age, he proposed the method of apportioning surplus to policyholders which is substantially that now in general use among American life insurance companies. He was the second President of the Actuarial Society of America and from its inception was most active and enthusiastic in its affairs, presenting many valuable papers at its meetings, and, on several occasions, offering prizes for competitive essays.

Although life insurance was the major interest of Mr. Fackler's career, his work extended to the casualty field. Among such practical contacts were his services as Actuary to a Joint Commission on Fidelity Bonds of the United States Congress (1909-1911), and as consultant to several casualty companies at the hearing before Governor Glynn on the subject of the initial compensation insurance premium rates for the State of New York (1914). He was actively interested in legislation upon matters related to public safety.

David Parks Fackler played no inconsiderable part in building the highest and most amiable traditions of the American actuarial profession. He upheld those traditions faithfully and graciously until the end.

CASUALTY ACTUARIAL SOCIETY

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	FRANK R. MULLANEY.....	1927
	JAMES S. ELSTON.....	1927

**Terms expire at the annual meeting in November, 1925.*

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

ABSTRACT FROM THE MINUTES OF THE ELEVENTH
ANNUAL MEETING, NOVEMBER 20, 1924.

The eleventh annual (twenty-third regular) meeting of the Casualty Actuarial Society was held at the Hotel Pennsylvania, New York, on Thursday, November 20, 1924.

President Leslie called the meeting to order at 10:30 A. M. The roll was called showing the following fifty-seven Fellows and twenty-six Associates present.

FELLOWS

BARBER	HAMMOND	NICHOLAS
BLACK, S. B.	HEATH	OTIS
BLANCHARD	HENDERSON	OUTWATER
BREIBY	HESS	PALLAY
BUCK	HOBBS	PERKINS
BUDLONG	JACKSON, C. W.	PINNEY
CAMMACK	KIRKPATRICK	ROEBER
CRAIG	KOPF	RUBINOW
DEUTSCHBERGER	LAIRD	SCHETLIN
DORWEILER	LAWRENCE	SENIOR
ELSTON	LESLIE	SMITH, C. G.
FALLOW	LINDER	STRONG, W. M.
FARRER	MCMANUS	TARBELL
FLYNN	MADRILL	VAN TUYL
FONDILLER	MAGOUN	WHITNEY
GINSBURGH	MELTZER	WOLFE, L. J.
GLOVER	MICHELbacher	WOLFE, S. H.
GOULD	MILLIGAN	WOODWARD
GREENE	MOORE, G. D.	YOUNG, C. N.

ASSOCIATES

ACKER	HULL	SAWYER
BLACK, N. C.	MATTHEWS	SMITH, A. G.
COMSTOCK	MICHENER	SPENCER
CONSTABLE	MONTGOMERY, J. C.	STOKES
CORCORAN	NEWELL	UHL
DAVIS, E. M.	PENNOCK	WARREN, C. S.
GRAHAM, C. M.	PIKE	WHEELER
HALL, H. L.	RICHTER	WILKINSON
HALL, L. L.	ROBBINS	

President Leslie read his presidential address.

The minutes of the meeting held May 23, 1924, were approved as printed in the PROCEEDINGS.

The Secretary-Treasurer read the report of the Council and upon motion, it was adopted by the Society. T. W. BROUGHTON, J. FROBERG, LESLIE L. HALL, R. M. PENNOCK and H. P. STELLWAGEN had been enrolled as Associates without examination. Diplomas had been sent to H. T. BARBER, A. C. DARKOW, H. J. GINSBURGH, and J. LINDER who had been admitted as Fellows under the 1924 examinations. The memorial notice of David Parks Fackler appearing in this Number was read.

The Council had accepted the offer of Joseph H. Woodward, an ex-president of the Society, of a prize of \$50 to the author of the best paper presented at the May 1925 or November 1925 meeting by a member who has passed his examinations within the last five years, the purpose being to stimulate the writing of papers by the younger members who have recently passed their examinations. The Secretary-Treasurer was instructed to send a notice to all members of the Society eligible to compete.

The Council of the Society had accepted the generous offer of James S. Elston to prepare an Index to the first ten volumes of the PROCEEDINGS. A bound volume of the Index will be in the hands of the members in December 1924.

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

H. T. BARBER	H. J. GINSBURGH
A. C. DARKOW (Miss)	J. LINDER

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

J. M. BUGBEE	N. E. SHEPPARD
W. H. KELTON	M. E. UHL (Miss)
O. C. RICHTER	L. A. H. WARREN
V. E. SHAW (Miss)	

The report of the Secretary-Treasurer (Richard Fondiller) a summary of which follows, was read and accepted:

The Society has now completed ten years since its foundation and a brief review of its activities may not be out of place.

During that period, the Society has held twenty-two meetings and after each meeting the papers and discussion held at each meeting have been published in our PROCEEDINGS. These papers covered practically every subject in the various casualty lines. The publications which each member receives annually are the two PROCEEDINGS, the bound volume of the PROCEEDINGS and the Year Book. During the past year these consisted of Nos. 21 and 22, Volume X of the PROCEEDINGS and Year Book No. 3. A special publication this year is the Index to the first ten volumes which will be in the hands of the members next month. The third edition of the *Recommendations for Study* was also issued during the past year.

The finances of the Society are in satisfactory shape. During the past year, in round figures, the income amounted to \$3,700 and the disbursements to \$3,000. It is expected that with the increasing membership and the large demand already existing all over the United States for the PROCEEDINGS, in the future the income of the Society will be more than ample.

At this date the membership of the Society consists of 159 Fellows and 87 Associates, a total of 246 members. During the past year, there were admitted by examination, four Fellows and seven Associates. Of the ninety-seven charter members admitted on Nov. 7, 1914, the date of organization, there are seventy-two remaining. There have been twenty-five Fellows admitted by examination, all of whom still survive and have kept up their membership to date. The annual report of finances follows:

ANNUAL REPORT OF FINANCES
FOR THE YEAR ENDING OCTOBER 31, 1924

Assets November 1, 1923:

Cash.....	\$ 170.81	
\$1,000 Liberty Loan Bonds 4¼% at cost	1,000.00	
Excess of income over disbursements, year ending October 31, 1924.....	691.06	<u>\$1,861.87</u>

Assets October 31, 1924:

Cash.....	\$ 861.87	
\$1,000 Liberty Loan Bonds 4¼% at cost	1,000.00	<u>\$1,861.87</u>

INCOME

Members' dues.....	\$1,970.00	
Sales of Proceedings.....	1,281.47	
Examination fees.....	205.00	
Interest.....	42.50	
Luncheons.....	200.00	<u>\$3,698.97</u>

DISBURSEMENTS

Printing and stationery.....	\$1,961.16	
Postage, telegrams & exp.....	110.00	
Secretarial work.....	360.00	
Luncheons.....	249.10	
Editorial work.....	18.00	
Examination expense.....	211.09	
Hartford Library Fund.....	2.23	
Book cases for Library.....	46.40	
Miscellaneous.....	49.93	<u>\$3,007.91</u>
Gain for the year as above.....		\$ 691.06

The report of the Auditing Committee is given subsequently in these Minutes.

The reports of the Editor (Olive E. Outwater) and the Librarian (Edward R. Hardy) were read and accepted.

The Auditing Committee (Charles E. Heath, Chairman), reported that the books of the Secretary-Treasurer had been audited and his accounts verified.

The examination Committee (Paul Dorweiler, Chairman) submitted a report of which the following is a summary:

1924 EXAMINATIONS—SUCCESSFUL CANDIDATES

The following is a list of those who passed the examinations held by the Society on May 7th and 8th, 1924:

ASSOCIATESHIP—PART I

BATEMAN, A. E.	RICHTER, O. C.
DAVIS, M. E.	SHAW, V. E. (Miss)
MALMUTH, J.	SHEPPARD, N. E.
MILLER, H. C.	SKELDING, A. Z.
NEWHALL, K.	SKILLINGS, E. S.

ASSOCIATESHIP—PART II

BUGBEE, J. M.	SHAW, V. E. (Miss)
CARTER, R. B. (Miss)	SHEPPARD, N. E.
KELTON, W. H.	UHL, M. E. (Miss)
RICHTER, O. C.	WARREN, L. A. H.
SCHLIER, C. L.	

FELLOWSHIP—PART I

AULT, G. E.	GINSBURGH, H. J.
BARBER, H. T.	HART, W. VAN B.
DARKOW, A. C. (Miss)	LINDER, J.

FELLOWSHIP—PART II

DARKOW, A. C. (Miss)	MATTHEWS, A. N.
GINSBURGH, H. J.	MOTHERSILL, R. V.
LINDER, J.	

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

President.....	G. F. MICHELBACHER
Vice President.....	SANFORD B. PERKINS
Vice President.....	RALPH H. BLANCHARD
Secretary-Treasurer.....	RICHARD FONDILLER
Editor.....	ROBERT J. McMANUS
Librarian.....	EDWARD R. HARDY

Members of Council (terms expire 1927)	} PAUL DORWEILER FRANK R. MULLANEY JAMES S. ELSTON	
“ “ 1926		OLIVE E. OUTWATER
“ “ 1925		SYDNEY D. PINNEY

A vote of thanks was tendered by the Society to the retiring officers and members of committees.

Recess was taken until 2 P. M.

The addresses that were made by ex-presidents Rubinow, Craig and Flynn, have been printed in this Number of the *Proceedings*. Messages of congratulations were received from the remaining ex-presidents, Messrs. Woodward, Mowbray and Ryan.

The papers printed in this Number were read or presented.

Upon motion, the meeting adjourned at 5:30 P. M.

To commemorate the tenth anniversary of the Society, a dinner and entertainment were held at the National Republican Club, New York, at 7 P. M. Hon. James A. Beha, Superintendent of Insurance of the State of New York, was a guest of the Society. The flashlight photograph taken at that time is reproduced in this Number of the PROCEEDINGS.

PROCEEDINGS

JUNE 5, 1925

A SURVEY OF THE PRESENT SITUATION

PRESIDENTIAL ADDRESS, G. F. MICHELbacher

I

On this occasion when we stand on the threshold of our second decade as an organization, it is appropriate that we should pause a moment to survey the present situation for the purpose of determining, not only what the future has in store for us, but also whether we are prepared to make the most of opportunities which will arise as we move onward.

At our last meeting the accomplishments of the past were reviewed by those responsible for the conduct of the Society during the period of its early development. A record of satisfactory achievement was presented. The difficult pioneering work has been completed. To-day we are favorably established as an institution in the field of casualty insurance. We are recognized as a group which has a valuable contribution to offer to the business. There is no good reason why we should not attain a more commanding position. Practically unlimited opportunities for service exist; we have so far merely scratched the surface in the accomplishment of our object, "the promotion of actuarial and statistical science as applied to the problems of casualty and social insurance."

It is my personal view that our future is assured; yet we must not overlook certain problems which now confront us if we are to enjoy a measure of success commensurate with the opportunities which are available to us. It will be my object briefly to present these problems as I see them, and in doing so, to indicate what I consider to be their proper solution. This will serve to develop a few simple principles for the guidance of the present

administration, provided of course there is no substantial protest against the platform which will be enunciated.

II

This is a critical time in our history. It marks a transition period in which the management of the Society must pass from one group to another. With the phenomenal growth of the casualty insurance business during the last decade many of our older members have advanced to positions of executive responsibility where their energies are divided between technical and administrative problems. They are unable to devote as much time as they have in the past to the actual work of the Society. We are assured of their continued sympathy and support, and we may expect them to offer valuable advice when it is needed. But it is to the younger generation that we must look for officers, and for committeemen necessary to conduct the activities which are essential to our continued existence. Perhaps we shall never again encounter a similar situation. It must arise in every organization which is established, as was the Society, by a group of charter members, and which grows by gradual increase of membership through examination and election. In every such organization a time will come when the original charter members, finding themselves unable to continue to carry the burdens of administration, must transfer the responsibility to those who have subsequently come into the group. If this transfer is accomplished satisfactorily, the work of the organization will be carried forward successfully. If not, meetings will be dull, the official publication will lose its vitality, interest will languish, new membership will fall off, and there will be a slowing up of progress. We cannot permit this condition to arise in this Society. Does the younger generation recognize its responsibility and is it prepared to meet this responsibility?

It is our duty to encourage those who have acquired membership since the inception of the Society to take a more active part in the work which we are doing. But it is more important that these members realize that the future of the Society depends upon them. They should attend meetings religiously, for a sure sign of deterioration is a poor attendance at the two gatherings we hold annually for a discussion of our common problems. If this,

our principal means of contact, does not arouse sufficient interest to bring out the members, it is obvious that little or no excuse remains for our existence. However, mere attendance at meetings is not sufficient. Our programs would indeed lack inspiration if our members did not generally participate in making them successful. Each member has a contribution to offer, and it is his duty to come forward with it. To-day our committees frequently have difficulty in obtaining enough papers to round out an adequate program. Papers are rarely submitted voluntarily; they must be solicited at the expense of considerable time and effort, and sometimes under sheer compulsion. This condition is not satisfactory. With the multitude of problems constantly arising in the field of casualty insurance, numerous papers should always be available from which the best could be chosen for presentation to the Society. Only a relatively few members may appear on the program of each meeting as authors of papers. But everyone is eligible and should participate in the discussion of these papers. Certainly every member has ideas on subjects which are offered for discussion. These ideas should be freely expressed. They will provide a valuable record in the *Proceedings*, and may lead to new investigations which will open up wider fields for study and experiment. Then we have the Actuarial and Statistical Notes, the Reviews of Publications and the Current Notes Departments of the *Proceedings*. There is room for expressions of opinion, for criticisms, and for helpful suggestions through these media. We welcome your assistance. There certainly is something you can do to improve the *Proceedings* and thus to make them more effective. The range of possibilities holds something for the talents of each member. Our associate members particularly should realize this. They may not have had the experience necessary to write papers but they can certainly contribute to other departments of the *Proceedings*. Finally, we should endeavor to bring as many of our new members as possible into touch with committee work. Unfortunately Associates may not serve in this capacity but there are many opportunities for Fellows, and when these are offered they should be accepted with alacrity and with enthusiasm for there is no better preparation for the more responsible executive positions of the Society than the training which comes from committee work.

III

What has been said presupposes a satisfactory condition as regards the membership of the Society. Naturally, if we are moving in the right direction, and have an energetic and enthusiastic membership with us, no serious obstacle can long bar our way. But here again the present situation is unsatisfactory. In my judgment our policy with reference to the admission of new members—particularly those who come to us without examination—is in need of overhauling. I do not intend to imply that our examination system is perfect for I shall also have something to say presently concerning that phase of our activities.

A short time ago, at the suggestion of Mr. B. D. Flynn, Chairman of the Committee on Admissions, I invited Mr. J. H. Woodward to prepare a plan which we might adopt as a guide in determining the qualifications to be demanded of applicants for admission to membership. Mr. Woodward's suggestions are so valuable that they merit the widest possible publicity. I am, therefore, taking the liberty of presenting them in his own words as follows:

“In passing on applications for admission, and in establishing rules for eligibility, it seems to me that the first essential is to have very clearly in mind what the Society is and what it is trying to accomplish. We tend, I think, to make the mistake of focusing too much attention on the applicant and not enough on the Society. My own conception of the Society is that it is a living and integral part of the institution of casualty insurance, and not simply a group of mathematical students who have qualified themselves, or hope to qualify themselves, for dealing with actuarial and statistical problems. To my mind, the name of the society—Casualty Actuarial Society—does not carry with it the suggestion that every member must necessarily be an expert technician, but rather that the Society is composed of persons best able and qualified to further the object set forth in our Constitution, namely, the ‘promotion of actuarial and statistical science as applied to problems of casualty and social insurance.’

“I feel that we must in some way contrive that the people who are actually making the most important decisions and assuming the technical responsibility of the business shall, with few exceptions, be included among our membership. Further, I fee

that we should arrange that those casualty executives who have the highest standing and reputation in the business, but who may not be actuaries, should also be included in our membership.

“Now, in order to bring these men in, it is sometimes necessary to go out after them, and I believe that it should be one of the duties of the Committee on Admissions to recommend, after a thorough survey of the entire field, the names of four or five executives or other persons of distinguished achievement to be admitted each year to Fellowship without examination. I am opposed to a method whereby applications for admission to Fellowship without examination largely originate in the desire of particular individuals to get in. This is over-the-counter business and the adverse selection is likely to be bad. The people whom we want to bring in without examination are not those who ask to come in, but are those who have more to confer upon us than we have upon them.

“If those who are admitted *without* examination are obviously and clearly persons who have sufficiently distinguished themselves, then we afford proper protection to the younger men who are seeking entrance via the examination route. This latter class should include all those who presumably seek to join the Society not so much for what they can at the time put into it but for what they can get out of it. For these young men the Society is a convenient and legitimate stepping-stone to speedy preferment and they are entitled to the protection which they get when the Committee turns down borderline cases of applications for the waiving of examinations.

“Incidentally, this process results in a considerable amount of technical education, but the Society will never in my judgment realize its full destiny if it regards itself as primarily an educational institution. Our educational work and our educational qualifications for membership ought always to be subordinated to the fundamental object laid down in our Constitution.

“For somewhat similar reasons I have never looked with favor upon the acceptance of the examinations of the Actuarial Society of America, or the American Institute of Actuaries in lieu of our own. The casualty insurance student, struggling along under a smaller salary and with less encouragement and assistance than his brothers in the offices of life companies receive, is under a consider-

able handicap and is entitled to have his own society. By throwing open the doors to men from the life offices we run the danger of adding a large element to our membership which is not vitally and immediately interested in our aims."

I fully subscribe to Mr. Woodward's suggestions. They involve two important principles: First—that we are an actuarial society and not a society of actuaries and that, instead of placing too much emphasis on technical knowledge and skill, we should encourage the injection into our proceedings of the executive point of view, which tests results by their practicability as well as by their adherence to profound mathematical principles; and—second—that our efforts should be toward greater homogeneity of membership so that there may be in the Society a true community of interest in the problems which come before us for consideration.

Casualty insurance is the infant of the insurance business; yet in a few decades it has grown to a premium volume which exceeds \$500,000,000 annually. This rapid growth has necessarily rendered impossible the development of an elaborate actuarial science. If, therefore, we were too narrow in our admission requirements, we would bar many of the men whose clear vision, logical reasoning and good common sense have brought the business to its present state of development. We cannot afford to do this because we must have their cooperation in the important task before us, which is the introduction of more orderly and scientific methods in the classification of risks, in rate making, in underwriting and statistical procedure, and in fact in every branch of technique. We must create casualty actuaries and establish a casualty actuarial science, and those responsible executives who are interested in this venture, believe in our objects and are willing to join us in the work we expect to accomplish, should be urged to come into the Society. We need their active assistance as well as their moral support.

This leads to another thought which we may well keep before us at this time. We shall have little opportunity to arouse interest in actuarial methods unless we can gain the confidence of the executives who control the future of the business. To do this, we must be practical! At present the technician who is willing to compromise with practicability has a much better chance ultimately to win recognition, than the person who would

revolutionize methods overnight without regard for the confusion which might result. The development of an actuarial science for casualty insurance will be a slow process at best. It will progress at its most favorable rate if executives, underwriters and engineers are convinced that actuarial methods may be introduced without disrupting the business.

Concerning the desirability of making our membership more homogeneous, I may say that it has always been my feeling that we were in danger of impairing the usefulness of the Society through failure to limit our membership definitely to persons actually engaged in the casualty insurance business, or having a general interest in all of the problems arising in this field. Because this principle has not always governed us in the selection of members, the atmosphere of our meetings has not been conducive to the freest exchange of ideas on purely casualty insurance problems. There has been lacking a unity of interest which has discouraged discussion. Recently something has happened which I think tends to prove the accuracy of this point of view. There has been organized a body of casualty and surety statisticians known as the Association of Casualty and Surety Statisticians. The statisticians felt the need for a forum where they might come together and discuss their problems, and their decision to organize a new body, it seems to me, is conclusive proof that there is something wrong with our Society. It apparently has failed to demonstrate its usefulness to a group of technicians in the business whose keen interest and support we should have. For purely selfish reasons I deplore this tendency to take away from the Society functions which it was intended to perform, and which it is equipped to perform in a highly successful and satisfactory manner.

The Council has appointed a special committee to study the qualifications for membership in the Society, and we may expect a definite report on the subject by the time of the annual meeting.

IV

Finally, a word concerning the present examination syllabus. There are two plans upon which a syllabus for our examinations might be constructed. First—we might assume that persons desiring to enter the profession would become employed before taking the examinations and before completing their academic

training, and that they would expect later to qualify for membership as their knowledge of academic subjects and of the business increased. Upon the assumption that the student would continue his studies and come up for examination as he advanced from simple to more difficult subjects, the earlier stages of our examinations should be fairly simple, the later more severe. Thus, for example, we should start with arithmetic and gradually lead the student through the various advanced branches of mathematics until we had exhausted the subjects which are considered necessary training for actuaries. The student would acquire his training in theoretical and practical subjects simultaneously, and he would be examined from time to time as he attained various stages of his development.

Second—we might assume that persons entering the profession have a background of theoretical knowledge, and that their early years are spent in giving practical expression to their theoretical knowledge by the solution of actual problems arising in the business. An examination scheme designed to fit the requirements of such candidates would cover theory of all kinds immediately, and would later take up practical questions. The first test should determine whether the individual candidate has an adequate theoretical background. Subsequent tests should ascertain whether the candidate is competent to apply this knowledge satisfactorily to every day problems in the business. From this point of view the examinations should run from theory to practice, and the emphasis should be placed more and more upon practice as the candidate's experience in the business grows.

At the present time our examinations are largely based upon the first of these two assumptions, and because this assumption is not in accord with the facts, the examinations are unsatisfactory, and are in need of revision.

Our effort has been to encourage college men to enter the profession. Certainly a majority of those who take our examinations have had university training. They come to us with abundant knowledge of theoretical subjects. Yet our first examinations are a curious mixture of simple theory, and of subjects relating to practices in the business with which these candidates have not had an opportunity to become familiar. They may be successful in these examinations, in which case they are enrolled as Associate Members. Later, when they are engaged in the difficult task of

finding themselves in the business, and have largely forgotten the theory acquired at the university, we ask them to review the most involved subjects, and to submit to examination in these subjects in order that they may become Fellows. In my judgment this is wrong procedure, and I fear that it will result in discouraging candidates who have attained the status of Associates from going on to become full-fledged members by the examination route. We should adopt the second plan if we wish to attract these men, and eventually bring them into the Society. This plan will enable us at the outset to determine whether the candidate is properly grounded in academic subjects, and will enable the candidate to demonstrate his ability to cope with practical problems as he gains experience from actual contact with the business.

It will have another advantage. We might in certain cases waive the associateship examinations where a person has attained a certain age, and for a certain period has had a responsible position in an actuarial or statistical department, and permit him to be examined in the practical subjects of the Fellowship examinations which he would be fully competent to answer. This would bring men of this type into the Society as Fellows whereas today many of them are not affiliated at all, and many others are, and always will remain, Associates.

The important work of revising the syllabus so that all academic subjects will be concentrated in the Associateship examinations, and practical subjects will be transferred to the Fellowship examinations is now under way in the Educational Committee, and we hope to announce a new program for the 1926 examinations.

V

The proposals I have made may seem radical to some members of the Society. To these individuals I would say that my only object in presenting a program at this time is a sincere desire to improve the Society. I have spoken frankly, and I shall expect similar frankness on the part of those who disagree with me. It is only by exchanging ideas in this manner that we shall advance toward the accomplishment of our common aim which must be to make the Society a real force in the casualty insurance business.

PLATE GLASS INSURANCE

BY

FRED S. GARRISON

INTRODUCTION

The manufacture of glass has been going on for centuries and has developed into a mammoth business. During recent years it has received a tremendous stimulus from automobile manufacturers who use great quantities of it and a few of whom are now engaged in manufacturing their own glass. It is estimated that the amount of glass used in automobiles in the United States in the year 1924 exceeded the entire plate glass output in this country in 1910.

The very nature of glass is such that it is easily broken, thereby making insurance against such damage not only advisable but necessary. Among the numerous causes of breaks in plate glass windows and show cases are windstorms, explosions, frost, snow, hail, ice, weather other than windstorms, sun's heat, throwing of stones, missiles, or baseballs, the projection of stones or other objects by passing automobiles, street vehicles (excluding stones or other objects thrown by automobiles), burglars, intoxicated persons, persons leaning or falling on glass, settling of building, articles dropped on show cases, falling awnings, defective setting, slamming doors, fighting and street disturbances, window dressing and cleaning, and workmen in or about the premises. But at least 40% of the total number of breaks are due to unknown causes. Usually in the latter case, the storekeeper upon opening his store in the morning discovers that his plate glass store front was broken from some unknown cause the night before.

The financial loss due to breakage of glass annually in the United States, without allowance for salvage, is probably between \$8,000,000 and \$10,000,000. The glass losses paid by insurance companies in the United States in 1924 after deducting allowance for salvage amounted to over \$6,000,000. While it is impossible to determine what percentage of glass is uninsured, Plate Glass Underwriters are practically unanimous in the opinion that not over 60% of all grade floor store fronts are protected by insurance. Probably not over ten or fifteen percent of the

glass above the grade floor is insured. The use of plate glass for store fronts, show cases, mirrors and for other purposes is essential in the conduct of many classes of business. Owing to its fragile nature, a certain quantity of it is bound to be broken. If the damage from such cause amounts to \$8,000,000 or \$10,000,000 annually in the United States, the necessity for plate glass insurance is evident. The comparatively small premium expenditure makes it possible to distribute the losses among a large number, thereby enabling Plate Glass policyholders to avoid the possibility of paying a substantial amount from time to time because of damage to their glass. Merchants recognize the sales value of an attractive display of merchandise behind clear and flawless plate glass in their show windows. There is scarcely any kind of merchandise that is not displayed in such manner. Some storekeepers call their show window displays "silent salesmen".

During and immediately after the great war, there were some unusually large losses caused by explosions. Uninsured storekeepers and owners of buildings had to pay considerable sums. The four principal explosions during recent years in this country caused losses to Plate Glass Insurance Companies aggregating \$565,000 as follows:

Year	Location	Amount	Cause
1916	Black Tom Island, New York Harbor.....	\$300,000	Explosion of ammunition in freight cars.
1917	Gillespie Loading Plant, Morgan, N. J., near Perth Amboy.....	165,000	Explosion of ammunition
1917	Halifax Harbor—Nova Scotia.....	25,000	Explosion of shipload of TNT in Halifax Harbor
1920	Wall Street, New York City.....	75,000	Explosion of bomb in Wall Street, New York

Needless to say, plate glass policyholders, when these explosions occurred, were mighty glad they carried insurance protection of this kind.

If there were no such thing as Plate Glass Insurance, the storekeeper would have to stand the loss himself, or endeavor, usually through legal channels, to collect the amount of his damage from the person or persons responsible for breaking the glass; but as has already been pointed out, from thirty to forty percent of the breaks are due to unknown causes, and many others from wind or

weather conditions. Many of the other breaks are of such a nature that the storekeeper would be unable to collect damages. The Plate Glass Insurance Policy contains a subrogation clause but Insurance Companies collect only a comparatively small amount from the person or persons causing the damage. The amount so collected is almost negligible compared with the losses for which subrogation rights are of no avail.

HISTORICAL DEVELOPMENT

Plate Glass Insurance is one of the oldest lines of casualty insurance and was issued in Europe before its advent in the United States. The first policy was issued in England over seventy years ago. The first stock company to engage in this line in this country started in 1867. It is still doing business although its volume of plate glass business, which is the only line it has ever written, is comparatively small. The line is now written largely by the multiple line companies, one of which began, and continued for many years, as a single line Plate Glass Company, and which recently celebrated its fiftieth anniversary. The business developed slowly for the first few years and in 1894 amounted to only \$1,215,898 in premiums written by seven Companies, six of whom are still in business and four of whom now write multiple lines. Notwithstanding the large number of Companies, both stock and mutual, engaged in this kind of insurance, it has not developed as rapidly as most of the other casualty lines. In 1924 the total premiums written by 55 Companies amounted to approximately \$17,000,000 or an increase of about \$16,000,000 in thirty years. When compared with other casualty lines, this is very slow progress, and may be attributable to the plan under which plate glass insurance has been issued from the beginning both in this country and in Europe. It is possible for the Applicant to select which plates he will insure, thereby naturally making the selection against the Company with resulting higher rates, which discourage many of the better risks. No plan has yet been devised that will cause every Applicant to insure all or even a reasonable part, of the glass in his premises. Practically all Companies make commendable efforts to do this, but with little success.

POLICY FORM

The Plate Glass Policy issued today by practically all Companies is the shortest and simplest of any of the standard forms used in any kind of insurance. There is very little, if any, difficulty in adjusting losses and practically no suits by policyholders. There is a record of only one such suit in the year 1924. This case arose over a question of whether the Assured, the glazier or the Insurance Company was liable for a plate of glass broken by the glazier while replacing another plate which also was covered by the Policy. The court held that the Insurance Company was liable and that the loss was not excluded under the terms of the Policy, which provided that the Company was not liable for any damage caused by or from the acts of operations of workmen engaged in the construction of or repairs to the building or frames in which the glass covered by the Policy was located.

The Plate Glass Policy in use today provides indemnity for all damage to the insured glass, as well as the insured lettering and ornamentation thereon, caused by the accidental breakage of the glass. No amount of insurance is stated. The Company's liability is limited only to the value of the glass at the time of breakage, with the exception of insurance on lettering ornamentation, and such glass as memorial windows and art glass, which is insured on a valuation basis representing the Company's maximum liability, which valuation is stated in the Policy. The Policy provides that the Company shall replace without unnecessary delay any broken glass and any lettering or ornamentation thereon insured under the Policy, or pay for the same in money, as the Company may elect. In either case the salvage, if any, belongs to the Company. Upon replacement of any glass or lettering or ornamentation covered by the Policy, or payment therefor by the Company, insurance continues automatically on the new glass or lettering or ornamentation, but the Assured is required to pay a pro rata additional premium therefor. The losses not covered are those resulting from (1) fire, earthquake, the blowing up of any structure by civil, military or naval authority; (2) improper glazing or the acts or operations of workmen engaged in the construction, demolition, or alteration of or repairs to the part of the building in which the insured glass is located; (3) the removal of any glass from its frame or permanent position. Until January 1, 1923, when a new Policy was

placed on the market by all Companies, the Policy had excluded coverage for losses by inundation, insurrection or riot, but the present policy covers damage to glass from such causes. The word "breakage" as used in the Policy does not apply to disfiguration of or damage to any glass unless it is a fracture extending through the entire thickness of the glass. The Policy contains the usual suspension, cancellation and subrogation clauses and it also provides that clamped, glued, bent, wired, leaded or cathedral glass, or doors, mirrors or show cases, or any glass not set in frames, sashes, or bars, or anything other than plain plate flat glass is not covered unless especially described and stated to be insured in the schedule.

RATE MAKING

Notwithstanding the number of years that this form of insurance has been written in this country, there was not until four or five years ago any statistical information available for rate making purposes, except the total premiums and total losses by states and some of the larger cities. Differentials were, and to a certain extent still are, based upon underwriting judgment for special kinds of glass and types of settings, such as clamped, bent, art, cathedral and carrara glass, lettering and glass signs. This is equally true of show cases, mirrors and other glass used for various purposes. A few Companies have from time to time inaugurated elaborate statistical systems, but owing to the large number of small items and extreme variations in sizes of plates the results were not sufficiently satisfactory to justify the expense involved. A commendable effort was made by twelve Companies who furnished statistics on the business written during the years 1918 and 1919 on the table premium basis, the table premium being the premium set forth in the rate tables in the Manual without application of any differentials for location or type of risk. While these figures, which amount to \$2,000,000 in table premiums, represent only a small proportion of the total business, they were helpful in reviewing rates for clamped glass, show cases and some other types of exposure. A new statistical plan was developed in 1924 for New York State, in accordance with the requirements of a recent law of that state, and is intended to show the actual results represented by the table premiums and losses for practically all of the principal types of exposure, but it is too

early to state with any degree of accuracy just how satisfactory these results will be because no experience under this plan has yet been compiled, although it is at present in the course of preparation.

For at least fifty years the plate glass manufacturers have published price lists arranged by the actual size of the plates, as plate glass is not usually sold on the square foot basis, owing to the radical increase in price between certain brackets. The difference in size between the largest plate in one bracket and the smallest plate in the next bracket may be only a few inches but the difference in price may be considerable. A plate containing 144 square feet of surface area costs over six times as much as a plate containing an area of 48 square feet, although only three times as large. At one time plate glass insurance rates were quoted on the basis of a percentage of the valuation set forth in the manufacturer's price list, and this is still followed in the present Plate Glass Manual today, although in an indirect manner. The Plate Glass Manual contains exactly the same tables of sizes as the manufacturers' price list, but the figures set opposite each size represent the table premium, whereas in the price list they represent the value, but both figures are subject to discounts. As the plate glass market prices change, the manufacturers raise or lower their discounts, as the case may be, and the insurance companies do likewise, but the gross price and gross premium usually remain stationary for a long period of years.

The insurance under 90% of the Plate Glass Policies is unlimited as to amount and if the price of glass rises the loss ratio will rise. In normal times the price of glass in a large city may change two or three times a year, but as a rule the net change for the full year is not very great. But during the war the price of glass rose from 300% to 400%, depending on the locality, with resulting increases in premium rates, which, however, were at times many months behind the increase in the price of glass.

The price of glass varies in different cities. In some cities it is customary for glaziers to quote the net price for furnishing and setting the glass, while in others they prefer to make two separate charges—one for furnishing the glass and the other for setting it. Allowances for pieces of salvage containing more than ten square feet are made by practically all glaziers. In addition, however, to the effect of the price of glass on the premium rates, there are

other factors which enter into the rates such as windstorms, floods, explosions and riots. However, the larger losses due to explosions during the war were excluded from the experience used for rate making purposes. Geography plays a part in rate making, not only because some localities are more subject to windstorms and floods than others, but because of their remoteness from a plate glass factory or dealer and the resulting higher freight charges for shipping the glass, but whatever the cause of loss, the results tabulated by states and cities accurately reflect the loss cost upon which the rates are based. A few years ago an effort was made to introduce experience rating in the plate glass business, but a large majority of the Companies were opposed to it. However, it appears quite evident that in many respects experience rating in this line, especially for risks of sizeable proportions, would produce satisfactory results, and could be more easily applied than in some other classes of insurance to which it has been applied successfully for several years. In time experience rating will unquestionably be applied to this line, and there will also no doubt be other improvements. Until some means is devised that will enable the Companies to insure all of the glass in the premises, or at least all of the store fronts, show cases and mirrors it is doubtful if plate glass insurance will develop the volume of premiums which it should and thereby place it in its proper position in the casualty insurance business.

The only method of plate glass rating that might be called "merit" rating is the discount of 25% allowed for exterior shields of stout wire mesh or wired glass covering exterior glass in windows and maintained in position at all times. There are various devices intended to protect large plates against unusual wind pressures as well as from blasting and similar hazards, but as they are of no avail against breakage from many other causes, no discount in the premium rate is allowed for them.

In making rates, five features are taken into consideration, as follows:

- (1) Location, including state, city, and zone;
- (2) Position of glass in the building;
- (3) Kind of glass;
- (4) Purpose for which the glass is used;
- (5) Style of setting.

The usual method followed in fixing plate glass rates is to take the premiums earned and losses incurred for all Companies combined and to segregate such figures—first, by states and in some cases, groups of states—and then by the cities of 50,000 population or over, and also in the cases of such cities as New York, Jersey City, Newark, Boston, Chicago, Philadelphia and Detroit, by zones into which those cities are divided. Greater New York, for example, is divided into approximately 250 zones. In the case of a risk in a corner building on two streets, both of which are zone boundaries, the average rate of the two zones is used. The zoning of the large cities for rating purposes has proven to be desirable and has enabled the Companies to avoid charging exorbitant rates for risks in the better sections and to charge adequate rates in other sections. The difference in hazard between different sections of the same city is apparent. Congested areas composed of narrow streets naturally require higher rates than are charged in sections where the streets are wide and there is little if any congestion and the stores are well kept. In some cities it is the custom of glaziers to make a higher charge for setting glass in the outlying sections, and this also is reflected in the loss ratio and consequently has a bearing on the rates. Zone rates are applied through use of differentials. In Greater New York there is an organization known as the Plate Glass Insurance Exchange in which a card is filed for each risk insured. This card shows the location of the risk, the number of plates and the premium. The purpose of this system is to register the premium for each risk. The Exchange, however, is not a rate making organization. The rates for Greater New York are made by the same Bureau that makes the rates for the entire United States. Sometimes two or more cards showing different premiums are filed for the same risk by different Companies, but such differences are usually due to the fact that the number of plates to be insured by each Company is not the same. If two cards with different premiums for the same plates are filed by two Companies, the Exchange checks the premiums to determine which is correct and notifies the Company quoting the incorrect premium to make the necessary correction. The necessity for this practise is due to the large number of plate glass risks in Greater New York, the volume of premiums there being approximately one-fifth of the total premiums for the entire

United States. Because the premium is computed on the dimensions of each individual plate, errors sometimes creep in and the filing of the card in the Exchange is intended to reduce the number of such errors to a minimum. The purpose of the Exchange is similar to that of the Stamping Offices maintained by the Fire Insurance Companies in many large cities.

The position of the glass in the building also has a bearing on the rate as show window glass located on the grade floor, basement or first floor above a basement is subject to a much higher rate than for similar glass located above such floors. For example, in New York City the rates for plates of not over 60 inches in the smaller dimension and located above the grade floor is only one-eighth of the premium for the same plates on the grade floor. Larger plates above the grade floor require a rate of two-thirds of the premium for such plates on the grade floor. The rate for interior glass, such as show cases, is double the rate for glass in show windows, but on such interior glass as stationary mirrors the rate is only one-fourth of the show window rate.

The kind of glass has a very material bearing on the rate. Clamped, glued or cemented glass (not bent), in a show window is subject to 100% additional premium over that charged for plain plate glass in the same window. Bent glass containing not over 21 square feet in surface area requires a premium of five times that chargeable for flat glass. Bent glass containing over 21 square feet is insured at a flat rate of 10% of the valuation which must be stated in the Policy. Bent glass requires a higher rate because it is not only more expensive but it is more difficult to obtain and set. Many plate glass factories do not manufacture bent glass at all. The same is true of art, cathedral or jeweled glass. The rate for such glass as carrara, opalite, vitrolite, argentine, and motion picture screens is 15% of the valuation, and for lettering, designs and glass signs—10%.

The purpose for which the glass is used also has a bearing on the rate. Show cases, shelves and counter or table tops require a higher premium than is charged for show windows. This is because the chances of breakage are greater, particularly on show cases where people are continually leaning on them or dropping articles thereon. Furthermore, show cases are frequently moved about and this creates an additional hazard not present in the show window plate.

Style of setting affects the rate also. A plate of clamped glass when broken frequently causes the plate adjoining it to break also. This is not so likely to happen in the case of plates set independently of each other.

Two methods are used in making rates—One, the loss ratio basis arranged by states, cities and zones, and the other what is in part at least a pure premium basis. In applying this plan the actual amount of losses paid in a given city or locality are taken and the present price of glass compared with the average prevailing for the period during which the losses were incurred, which losses are thus modified to present day values. The amount of premium necessary to produce a $42\frac{1}{2}\%$ loss ratio is obtained by multiplying such losses by 2.37. The total premium thus obtained is compared with the premium actually charged during the experience period, but at this point an estimate must be made to obtain the average rate for the period unless there have been no changes in the Manual rate during that period. If there has been no such change the premium actually charged at Manual rates can easily be compared with the premium to be charged to take care of the same losses at present day prices, but in all such cases due allowance must be made for possible fluctuation either way in the price of glass during the next six months.

Experience indicates that while there are several satisfactory styles of setting, the old-fashioned wood setting is probably the most satisfactory. Wood settings are not subject to the contraction and expansion existing in metal settings nor do they involve the exposed edges and clamps used in setting so-called clamped glass. The coverage furnished under the Plate Glass Policy is largely in the nature of a service rendered the Assured by transferring all of the responsibility to the Insurance Company in removing the broken glass and furnishing and setting the new glass. Less than 2% of plate glass losses are settled by the payment of actual cash indemnity to the Assured, and most of such cases are in connection with art and cathedral or similar glass insured on the valuation basis.

Another new feature of recent development in this line is the plan under which the Insurance Company issues a Policy at one-half of the Manual premium and attaches an endorsement to the effect that the Assured shall pay all losses up to the amount of premium stated in the Policy, and from then on to the end of the

Policy Period the Company pays all losses in full. So far this plan has been applied only to policies for which the Manual premium is at least \$50.00 and is used by only one stock company, which is a non-Bureau Company, and several reciprocals. The Bureau Companies have not adopted it, preferring to provide full coverage at full Manual rates.

There is no moral hazard in plate glass insurance comparable with that in burglary, automobile, accident and other lines, but this term is sometimes used in connection with the care (or lack of it) exercised by the Assured in protecting his glass and keeping his premises clean and in good shape. There is no incentive for fraudulent claims. The breaking of a perfectly good plate of glass and its replacement by another of the same type and quality not only does not benefit the Assured, but usually causes him some temporary inconvenience during the removal of the broken glass and the setting of the new plate or plates.

A new form of plate glass insurance was started a year or more ago under which insurance is provided on glass in automobiles against damage by breakage. Owing to lack of sufficient experience, the first rates were experimental—\$5.00 for an open car and \$10.00 for a closed car, with higher premiums for taxicabs, public and commercial vehicles. The rates were recently reduced to \$3.50 and \$7.50 respectively. This form of insurance is provided by endorsement attached to the standard Plate Glass Policy or in the Automobile Liability Policy.

The most difficult problem in the Plate Glass Insurance business is to develop a plan that will enable the Insurance Companies to insure desirable risks at lower rates and thereby attract a large number of risks not now insured, and at the same time permit the Companies to make a reasonable profit, but it is evident that this cannot be accomplished until some plan is devised that will not permit the average storekeeper to select two or three large front plates for insurance without requiring him to insure his less exposed glass and glass of smaller dimensions. In other words, the Companies must receive a premium on the better part of the risk before rates can be reduced on the more hazardous part. This is not only a difficult problem but a very old one. Plate glass underwriters have struggled with it for years, but as yet no satisfactory remedy has been found.

EXPERIENCE RATING *In Rem* AND *In Personam*

BY

LEON S. SENIOR

Among the peculiar questions that arise as an incident to the rating of workmen's compensation risks, I can think of nothing quite so important from the viewpoint of the individual policy holder as the question whether experience incurred under workmen's compensation policies shall attach or follow the person, i. e. the employer, or the risk. In order to fully appreciate the importance of arriving at a fair decision on this question, it is well to bear in mind the fact that the status of the employer is not fixed permanently. As the owner of the enterprise, the employer frequently changes his legal form and the style of his organization. An individual employer invites new capital and admits a partner into his enterprise; members of an old firm retire and allow younger men to take their places; partnerships change into corporate form; corporations change names and transfer large or small holdings of stock to new interests. At times individuals as well as copartnerships and corporations are forced into bankruptcy because of bad management or poor economic conditions and Receivers are appointed to conduct or liquidate the business.

So far as experience rating is concerned, what shall be done in following this gamut of changes? If it is accepted that experience reflects the morale of the management and that the owner is responsible for the character of the management, should not the experience incurred under a given ownership be discarded as soon as the new owner comes into possession? In that connection, how can it be best determined that a bona fide change in ownership has actually taken place and that the results flowing from such change will bring about reduced accident frequency and severity? Or is it not more rational to require that the experience shall follow the "risk," a term that requires an exact definition.

Rule 32 of the New York Experience Rating Plan permits the exclusion of past experience incurred on a given risk if a material change has taken place in ownership and control; corresponding rules in plans adopted in other states have substantially the same

provision with some minor modifications. This rule has been accepted quite submissively for a long time and until quite recently, when the line of decisions promulgated under the rule prompted the New York Department to direct a general inquiry into the soundness of the rule and its underlying theory. As an incident to this inquiry, the assumption that experience must follow the person of the employer and not the risk has been seriously challenged. In fact, one or more members on the rating committee of the New York Board have been bold enough to advocate a new idea which for the sake of brevity and convenience I have christened as "Experience rating *in rem*" to be distinguished from our present system of "Experience rating *in personam*." Those familiar with practice in admiralty courts will recognize the analogy. The proponents of the new idea would require that experience shall attach to the risk and not to the person, just as in certain actions at admiralty it is the practice to file suit and pursue the claim against the ship and not against the owner. This proposal like all suggestions that are new and strange immediately provoked a storm of criticism, the essential points of which will be covered in this discussion. The burden of proof is, of course, on the proponents of the new rule to establish: first, that the present system is faulty, and second, that the new rule will cure such defects and inequities as may be caused under the existing practice.

The arguments for and against the proposal should be subdivided so as to give proper weight to the legal as well as to the underwriting aspects of the case. Preference should be given to the legal viewpoint as the more important of the two. If under the general principles of law or equity the new owner must not be charged with experience incurred by his predecessor, expressed in terms of premium rates, then it becomes immaterial to delve into the underwriting question. A legal inhibition of this kind precludes further discussion. To make sure of our ground we have consulted a committee of five distinguished lawyers, all familiar with the subject of casualty insurance. The opinions expressed by the individual members of the committee follow:

For the proposal:

1. To have the experience follow the risk and not the ownership is more equitable because a credit would be allowed when

due and the charge would be in the nature of a liability of the concern which the new management would assume and one that proper supervision and control would eventually be able to eliminate from their policy.

2. When an established manufacturing plant, for instance, passes from one owner to another without any change in the physical conditions, it would seem perfectly reasonable to expect that the experience, so far as accidents are concerned, would continue under the new management substantially the same as under the old management. If, therefore, the rating organization should see fit to make a rule that the rate for the new owner shall be the same as it would have been for the old owner if no change had been made, it would be a perfectly reasonable rule and hence entirely legal. It is also conceivable that the character of the business might affect the question in a given case. If it is a manufacturing establishment where the employees, machinery and material remained substantially the same, a change in ownership or control would not indicate a change in experience. If, on the other hand, the business was of a kind where the character and place of work and the workmen changed frequently, as for instance in the business of a general contractor, a change in ownership or control might result in a very decided change in the experience.

3. It seems to be in furtherance of the spirit of public policy to demand that the experience follow the risk and not the management. If the experience of a risk has been unfavorable and is so at the time of the sale and transfer of ownership and control and the rate or rates as theretofore applied to such risks did not produce an excessive or unreasonable profit, it would seem to be not only improbable but impossible that the rates applicable to such risk would produce an excessive and unreasonable profit merely by reason of the change of ownership. Unless the experience is held to follow the risk, there would be no inducement or incentive for the successor to cure, correct and remedy the equipment of a risk, the experience of which was unfavorable.

Against the proposal:

1. The experience of a plant under one ownership cannot be charged to a new and different owner; furthermore, the idea that the experience rating plan pertains primarily to the risk and not

to the management, ownership or control is erroneous; physical conditions in plants are cared for by schedule rating, and the personal factor referred to as the "moral quality of the management, ownership or control" is taken into account by experience rating. Hence, it would be unreasonable to burden a new owner of a plant subject to experience rating with the poor experience of the former owners for approximately five years without relief in rates, notwithstanding a definite marked improvement in the experience after the change of ownership. For these reasons it appears that the proposal is unreasonable and will be so held in the event of litigation and therefore not enforceable.

2. Under the existing rules and practice with respect to experience rating the inability of an owner to escape the penalty of a bad experience for so long a period as five years is in itself an unreasonable requirement. Where an owner of a plant is able to demonstrate that during a reasonably long period because of the exercise of care and supervision in the enforcement of the rules and selection of competent and skilful supervisors he has been able to so improve working conditions as to effect a marked reduction in the number and character of accidents, with a corresponding reduction in the loss ratio, the courts will not be slow to afford him relief in the matter of rates for insurance, where, as in New York State, the statutes require that the schedules, rates and methods employed in computing rates charged for insurance shall be reasonable.

Whatever may be the final holding as to reasonableness in this connection, where the change in ownership is merely nominal, as where two partners turn their partnership business into corporate form and go on thereafter with the same pecuniary interests in the same organization, and where the corporate experience does not vary substantially from that under the partnership organization, it is altogether unlikely that the courts would sustain a rule which would make the bona fide purchaser of an existing plant pay a higher premium than he would be called upon to pay upon the establishment of a new plant.

When these opinions were submitted to a committee of underwriters, it was decided that the objections to experience rating *in rem* far outweigh any possible advantages that may be derived from the proposed change. The argument follows:

For the proposal:

1. The purchaser of an enterprise knows or should know its past condition and should therefore inherit the experience as one of the assets or liabilities of the risk.

2. There would be no inducement for the new owner to remedy the equipment of a newly purchased plant unless it was directly brought to his attention that he is the legitimate successor to the past experience.

3. Experience rating *in rem* would be simple in application; it would no longer be necessary to determine as a matter of fact or as a matter of law whether certain conditions constitute nominal or material changes in ownership and management, nor would the rating organization be called upon to eradicate the past experience upon evidence which does not establish any change in prospective hazard.

Against the proposal:

1. If an assured owns or acquires separate enterprises, each enterprise would have to be looked upon as a separate risk to be separately rated. In practice, it would be necessary to keep the experience segregated for each enterprise and follow it through for rating purposes over a series of years. It is doubtful if a procedure of this kind can be followed in practice.

2. If employer "A" starts his business career by the purchase of an enterprise from employer "B" and if the risk has developed a charge, such employer will be unfairly handicapped as against "C" similarly starting his business career with an enterprise that has no compensation history. Other illustrations on these lines can be given where two new employers would become subject to unfair discrimination.

3. It would be especially difficult to follow the risk in the case of contracting enterprises. In such cases there is almost a complete absence of physical characteristics that would permit the application of experience rating *in rem*. For the purposes of the rating organization the only thing of value in that case is the name of the contractor and the good will of the business.

4. If the plan is to be changed so as to allow for experience rating *in rem*, our conception of the term "Risk" will have to

undergo a material alteration. As at present defined, the term "Risk" includes all operations of any one assured within a given jurisdiction. What definition can be devised for "Risk" under a plan that directs experience to follow the risk?

A review of the arguments both from the legal and underwriting points of view leads to the conclusion that the theory for Rule 32 seems to be in accord with the general principle of the plan itself; that it is not proper either in law or insurance practice to charge a new owner with the sins of the past or to give him rewards for experience not earned under his supervision. In order that Rule 32 may be fairly applied in practice, a change becomes necessary so that the terms used may be more sharply defined. The general idea should be to prevent the obliteration of past experience on improper applications conceived in fraud or presented on frivolous grounds.

As a result of the discussion on the subject, the following amendment to the present rule is suggested:

The past experience of a risk shall not be excluded because of nominal changes. The following conditions constitute nominal changes: Admission of new partners; retirement of old partners; changes from individual or copartnership to corporate form; changes in stock transfers and corporate shareholders; changes in executive staff; appointment of receivers in bankruptcy and other proceedings; changes in corporate names or titles under which the business is conducted. The past experience of a risk shall be excluded only if a material change has taken place comprising a complete transfer of the proprietary interest, together with corresponding changes in executive control and operative management.

This amended rule follows the present theory of experience rating *in personam*, defines just what may be construed as nominal and material changes, and permits the exclusion of past experience provided there is a complete change not only in proprietary interest but also in executive control and operative management, linking together the three conditions for the purpose of satisfying the rating authorities that exclusion of past experience is in order.

The question might be raised as to why the rule should not stop with the requirement of evidence showing a complete transfer of proprietary interest. Why inject as a condition precedent to the exclusion of experience, changes in executive control and operative management? I think the answer lies in the fact that

evidence respecting change in proprietary interest is at times cloudy. To make out a complete case the burden should be on the applicant to show that the new owner has not only come into possession, but has entered with doors wide open and has lent the force of his personality into the management of the enterprise. In other words, while the underwriting committee was influenced to a large extent by the opinion of the lawyers, it has nevertheless reserved certain rights and has incorporated its own views by insisting that the new owner shall give additional evidence of prospective changes in hazard by proof that he has assumed executive control and operative management.

It is quite true that other rating plans which have come under my observation use more elaborate definitions, reciting in greater detail the particular conditions that constitute a nominal or a material change. I have a feeling though, that these elaborate definitions lend themselves too readily to the purpose of building up a case, and that the better practice is to have sharp definitions of a general character, permitting sufficient latitude for each case to be judged on its merits.

STATE REGULATION OF INSURANCE RATES

BY

CLARENCE W. HOBBS

The stretching out of the long arm of the state to regulate and control the prices to be charged for insurance is a single incident in a legislative programme very widespread in its scope. Legislative policies as to prices, generally, during the early part of the century, were founded upon the theory that the law of supply and demand, and the competitive principle were a sufficient control, and that all the legislature had to do was to keep its hands off and the matter would presently regulate itself. This policy was based on two assumptions, first, that competition would always be present; second, that a demand would always create a commensurate supply.

This policy had the advantage of not demanding, or rather positively requiring a minimum of legislative action and therefore lasted a long time by virtue of the *vis inertiae*, a very potent force in matters legislative; in fact it still numbers no inconsiderable force of adherents. But the assumptions were, at most, only partly true. Competition is a form of warfare, and its consequences are not infrequently only slightly less harmful to the victor than to the vanquished. Its development inevitably forces the combatants to seek allies, and endeavor to formulate a victory not by individual force but by combination. Once the combination process begins, it rapidly progresses to the point where one group possesses enough strength to dictate terms to the other groups which still survive; and when this point is reached there is of course no real competition left. Similarly, it is possible by combination to control or limit production, and, therefore, to govern with some accuracy the course of prices.

The first consciousness of these tendencies in the economic field produced in the legislative mind a vigorous reaction in opposition, whence flowed the numerous anti-monopoly and anti-trust statutes which are a familiar feature in the statute books of practically every state, and the extensive litigation which has engrossed, and in certain communities still engrosses, the attention of the courts.

The attempt to curb a widespread and very general economic movement by legislation is, however, a gesture, generally speaking, futile. Nor can the results of the anti-monopoly legislation be generally regarded as entirely successful. Once the principle of alliance and combination has been well developed, it is very difficult for the legislature or the courts to divorce the alliance, and still more difficult to set the individual members to fighting again.

This consideration is strengthened by the further fact that competition is by no means an unmixed blessing. Carried to its logical conclusion, its result is to leave the battlefield strewn with economic corpses, and with many of the victors nursing sore wounds, at once handicapped for efficient service and compelled to seek recoupment of loss in higher prices. This necessarily entails, not only a serious economic wastage, but a fluctuation in prices very unsettling to the community. Furthermore, there is, too, in the principle of combination and in the transaction of business in large units the possibility, not always realized to be sure, of increased economy and efficiency. Hence the legislative mind has developed, and in rather recent years, too, a second concept, namely; that it might be more advantageous to permit the economic development to proceed, and prevent it becoming a menace to the public by regulation and control. This has resulted in a substantial body of legislation which in effect permits combinations and the development of large monopolies or quasi monopolies, subject to certain restrictions, supervision over the management and operation, and last but by no means least, control over the prices to be charged.

The first manifestations in this line were in the case of the so-called natural monopolies, i. e., public service corporations. The right of the legislature to enact laws with regard to them was fairly clear, because of the peculiar nature of their functions. The later developments have been in case of businesses where the functions were essentially of a private nature, but where by virtue of the facts, the competitive principle had been so far superseded as to render possible artificial fixing of the prices of articles or commodities necessary to the community. Here the right of the legislature was less clear, and laws of this nature have been the subject of considerable litigation. The decisions of the courts have, however, given a very liberal interpretation to the powers of the legislature in this field.

Now coming to the subject of insurance. It is fairly clear that a good part of the existing anti-trust legislation does not touch insurance, although some statutes specifically include combinations to control the price of insurance, and others containing no specific reference have been interpreted to cover such combinations. There have been scattered decisions to the effect that such combinations are illegal at common law, although the better opinion seems to be that they are not.

State ex rel. McCarter v. Firemen's Insurance Co. 75 N. J. Eq. 372, 73 Atl. 80, 29 L. R. A. N. S. 1194 holding that a combination to fix insurance rates is, even in the absence of statutory prohibition, illegal and void and may be enjoined as *ultra vires* the corporations entering into the agreement.

Queen Insurance Co. v. State 86 Texas 250, 24 S. W. 397, 22 L. R. A. 483, holding that a combination to establish uniform rates and commissions is not illegal at common law.

It is well established that the state can forbid combinations of insurance companies or their agents for the purpose of controlling rates, commissions or manner of transacting business.

Carroll v. Greenwich Insurance Co. 199 U. S. 401. But see Niagara Fire Insurance Co. v. Carroll 110 Fed. 816.

This power is apparently very broad. Statutes have been upheld which invalidate stipulations in policies for notice and proof of loss where rates are made in combination.

Aetna Fire Ins. Co. v. Kennedy 161 Ala. 600, 50 S. 73.
Continental Ins. Co. v. Parks 142 Ala. 650, 39 S. 204.

and which permit in such cases the recovery of a sum in addition to the actual loss.

German Alliance Ins. Co. v. Hale 219 U. S. 307.
Firemen's Ins. Co. v. Hellner 159 Ala. 650, 49 S. 297.

A list of the anti-trust laws in force in the various states is included hereafter with notes as to such of them as specifically mention insurance.

Apart from anti-trust laws, the states have very generally enacted prohibitions against discriminations in rate between risks of the same class having substantially the same hazard, whether in the form of rate concession or of rebate of premium. Such statutes have been held constitutional.

People v. Hartford Life Ins. Co. 252 Ill. 398 37 L. R. A. N. S. 778.

Equitable Life Assur. Society v. Comm. 131 Ky. 126 67 S. W. 388.

Com. v. Morningstar 144 Pa. 103. 22A. 867.

Prohibitions against discrimination frequently appear in laws which contemplate positive rate regulation. There are on the other hand cases where the legislature has forbidden the making of a classification, thus compelling the carrying of risks, possibly involving a higher hazard, at the same rate as risks having a lower average hazard as in the statutes forbidding insuring colored lives at a different rate from white lives. The constitutionality of these statutes has not been tested.

In the insurance field, as in other economic fields, the prohibitions against combinations have proved ineffective or inadvisable, and in due course the form of legislation previously noted appeared, i. e., legislation which undertook to regulate rates.

The validity of this legislation was the theme of vigorous litigation. The leading case which finally determined the authority of the legislatures to regulate and determine insurance rates arose under a Kansas statute, (Session Laws 1909, c. 152), and is cited as:

German Alliance Insurance Co. v. Lewis, 233 U. S. 389, 1915 c. L. R. A. 1189.

The statute in this case in substance required fire insurance companies to file their rates with the Superintendent of Insurance, and authorized him to increase rates which were inadequate and decrease rates that were excessive, prohibiting the writing of insurance at rates other than those on file. This act was attacked as unconstitutional on these grounds:

First, under the constitutional guarantee of equal protection of the laws. The argument was that insurance was a private business, and legislation which fixed its prices, leaving the prices for other commodities unregulated, was class legislation.

Second, under the constitutional guarantee against deprivation of property without due process of law. The argument was that the law impaired a valuable right of property, namely, the right to fix rates by private contract.

Third, also under the constitutional guarantee of equal protec-

tion of the laws, based on the exception from the law of farmers' mutuals.

The court in its decision held that insurance was affected with a public interest and that its rates were subject to governmental regulation. In so holding it followed the rule laid down in:

Munn v. Illinois, 94 U. S. 113

Budd v. New York, 143 U. S. 517

Brass v. North Dakota, 153 U. S. 391

The reasons for the decision are of more theoretical than practical importance. The court laid some stress on the alleged fact that competition in fire insurance rates had practically ceased, and that there was the possibility of combined action injurious to the community. It pointed to a long series of cases upholding regulation of insurance in ways that indicated insurance was properly a business distinct from ordinary business. Practically, the decision fits in with the general trend of legislative, juridical, and public opinion as well, away from an economic system that placed much emphasis on the individual and his rights, to one that places equal emphasis on the community, and the subordination of private rights to the public interest. It establishes clearly enough at any rate the proposition that insurance rates are subject to public control.

In line with this case is *Citizens Insurance Co. v. Clay*, 197 Fed. 435, upholding a Kentucky statute requiring insurance companies to file with the State Insurance Board specific data regarding rates, and forbidding the use of rates other than those based on schedules furnished by the Board. In this case the court says: "The business of fire insurance is not impressed with a public use in the sense that the public can demand service, but it has at least a quasi-public as distinguished from a purely private character."

The right to regulate rates is, of course, subject to limitations. The same principles which have been laid down by the courts in cases involving governmental regulation of the rates of common carriers and lighting companies apply with equal force to the regulation of insurance rates. Within certain limits the legislature may act directly in fixing rates, or may commit to public officials powers to fix rates or to supervise rate making. Once its regulation becomes clearly unreasonable or clearly confiscatory, then the constitutional guarantee against taking property without due process of law applies, and will be enforced by the courts.

These limits to the legislature's power may be stated in more detail as follows:

In the first place, the legislature must provide a method whereby its decisions or the decisions of its officers with regard to rates may be submitted to a judicial tribunal. Otherwise there is a taking of property without due process of law. This principle was laid down recently in an opinion by the Massachusetts Supreme Judicial Court in an opinion given to the Massachusetts General Court on April 16th, 1925, as to the constitutionality of a bill for compulsory automobile insurance, which, *inter alia*, authorized the Commissioner of Insurance to make classifications of risks and establish premiums. This, the court held, would be constitutional if provision were made for a judicial review of the premiums thus established and not otherwise.

This decision quotes from the case:

Ohio Valley Water Co. v. Ben Avon Borough, 253 U. S. 287, 289

"In all such cases, if the owner claims confiscation of his property will result, the State must provide a fair opportunity for submitting that issue to a judicial tribunal for determination upon its own independent judgment as to both law and facts; otherwise, the order is void because in conflict with the due process clause, Fourteenth Amendment."

and comments thereon:

"This principle is as applicable to insurance premiums as it is to public utilities, narrowly defined."

Other cases involving the rates of public utilities, laying down the same principle, are:

Missouri Pacific Railroad Co. v. Tucker, 230 U. S. 340, 347,
Wadley Southern Railway Co. v. Georgia, 235 U. S. 650, 651,
660, 661

Missouri v. Chicago, Burlington & Quincy R. R. Co., 241
U. S. 533, 538

Oklahoma Operating Co. v. Love, 252 U. S. 331

Ex parte Young, 209 U. S. 123, at p. 147

Chicago, Milwaukee & St. Paul R. R. Co. v. Minnesota, 134
U. S. 418

Missouri ex rel South Western Bell Telephone Co. v. Public
Service Commission of Missouri, 262 U. S. 276

Bluefield Water Works & Improvement Co. v. Public Service
Commission of West Virginia, 262 U. S. 679

The access to the courts must be reasonably free and not hampered or subject to burdensome restrictions designed to impede free access to the courts.

Ex Parte Young, *ubi supra*

In the second place, the legislature or its officers must exercise their powers reasonably and not in such manner as to produce a confiscation of property.

The opinion of the Justices, above referred to, states the rule as follows:

"A fundamental principle of rate making by public authority is that in general the rate so established must be sufficient to yield a fair return on the reasonable value of property used or invested, for doing the business after paying costs and carrying charges. Rates not sufficient to yield such returns are unjust, unreasonable and confiscatory. That is the general rule."

As yet it is by no means certain how this rule will be applied by the courts in cases dealing with insurance rates. The public service cases involve as a rule the rates of a single corporation whose chief business is that affected by the rates. Insurance rates affect many corporations which may be actively engaged in many lines of insurance beside the one immediately affected. It may be assumed that the courts would not countenance rates so low as to produce an underwriting loss. There is a distinct question as to the basis on which they would determine the underwriting profit which they will allow as reasonable, and whether they will give any consideration to the so-called "banking" profit as the rating law of Missouri apparently considers proper.

There can hardly be a question that the courts will follow in general the lines laid down in the cases involving the rates of public utilities. This was done in the case of *State v. Harty*, 213 S. W. 443. This case arose under a type of statute which required rate increases to be approved by the Superintendent before becoming effective, a very common provision in insurance rate laws. Suit was brought to compel the approval of rates filed but not approved. This the court decided it could not do making the following citations with regard to its authority to control the acts of legislative officers:

"A judicial inquiry investigates, declares and enforces, liabilities as they stand on present or past facts and under laws supposed already to exist. That is its purpose and end. Legislation, on the other hand, looks to the future and changes exist-

ing conditions by making a new rule to be applied thereafter to all or some part of those subject to its power. The establishment of a rate is the making of a rule for the future and is, therefore, an act legislative, not judicial, in kind."

Prentis v. Atlantic Coast Line, 211 U. S., at p. 226, and cases cited

Interstate Commerce Com. v. Ry., 167 U. S., at p. 499

"The courts are not authorized to revise or change the body of rates imposed by a legislation or commission; they do not determine whether one rate is preferable to another, or what under all circumstances would be fair and reasonable as between the carriers and the shippers; they do not engage in any mere administrative work, but may and should restrain the operation of confiscatory rates."

Reagan v. Farmers' Loan & Trust Company, 154 U. S. 397

"The Legislature has power to fix rates and the extent of judicial interference is protection against unreasonable rates."

Chicago & G. T. Ry. Co. v. Wellman, 143 U. S. 344.

Express Cases, 117 U. S. 28

Traverse City v. Comm., 202 Mich. 575, 168 N. W. 480.

City v. Madison G. & E. Co., 129 Wis. 249, 108 N. W. 65.

These citations and the decision indicate that the court will not issue its mandate to compel an officer to exercise his discretionary authority over rates according to the court's ideas of what is just. The court's function is to deal with accomplished facts. If the rates as they stand are unjust, unreasonable and confiscatory, the court will enjoin their continuance. It will not, and cannot, compel the making of a new rate.

10 Corpus Juris, p. 434, Section 679, and cases cited; see also So. Pac. Ry. Co. v. Bartine, 170 Fed. 725; Love v. Atchison, etc., Ry. Co., 185 Fed. 321

It may be added that the courts will not intervene without clear proof of the confiscatory and unreasonable nature of the rates, and starts with the presumption that the act of the legislature or of the commission is valid.

10 Corpus Juris, Section 679, and cases cited

Seaboard Airline R. R. Co. v. Alabama R. R. Com., 155 Fed. 796

Chicago, etc., R. R. Co. v. Tompkins, 176 U. S. 167

So, too, in cases based on gas rates the rule is laid down that:

"A rate can never be made by compulsion of public authority so low as to amount to confiscation."

28 Corpus Juris, p. 578, Section 40, and cases cited.

In gas rate cases certain statutes are not infrequently involved fixing a maximum price for gas. When fixed, this maximum was not unreasonable, but in the course of time, by reason of changed conditions, became inadequate to yield a proper return to the company. In such cases the statute becomes unconstitutional and void because confiscatory.

Municipal Gas Co. v. Public Service Com., 225 N. Y. 89

Bronx Gas Co. v. Public Service Com., 180 N. Y. S. 38, 190
Appl. Div. 13.

In the first of these cases the rule is laid down as follows:

“Into such a statute must be read the implied conditions that rates shall remain in force at such times only as will not work denial of a fair return, and when the return falls below that level, the law is suspended until the level is again obtained, when the duty of obedience revives.”

This presents a situation very analogous to one which has on occasion presented itself in insurance cases, where a rate level adequate when fixed became inadequate by virtue of changed conditions.

One may conclude from the above cases:

(1) That the constitutional guarantee against deprivation of property without due process of law is as applicable to insurance cases as to other rate cases. Neither can it make a difference whether rates become confiscatory through direct legislative action, through direct action by administrative officers, or by the failure of such officers to grant needed relief.

(2) That the nature of the remedy is not a positive mandate to grant an increased rate. The courts will deal only with the existing law and the existing rates. If these result in confiscation, then the courts will enjoin the enforcement of the rates and of the law under which they are made.

As an example, take the case of:

Love v. Atchison, etc., R. R. Co., 185 Fed. 322

Here the court sustained an interlocutory decree enjoining the members of the Oklahoma Corporation Commission and the Attorney General from enforcing a provision of the all-inclusive Oklahoma constitution fixing maximum railroad rates.

Also in *Municipal Gas Co. v. Public Service Commission*, 225 New York, 89, the court held that the members of the Commission might be enjoined from enforcing the provisions of a statute fixing the maximum price of gas. Hence the power of the state to control

insurance rates is subject to the very positive restraint that in a proper case the courts will suspend the operation of the statute under which it professes to act.

Having given much space to the authority of the state, it may be well to give some attention to the extent to which the several states have gone.

As above indicated, the statutes affecting insurance rates fall into three classes, viz.:

- (a) Anti-compact laws, forbidding the making of rates in combination.
- (b) Anti-discrimination laws.
- (c) Rating laws, where the state undertakes to assert a positive control over rate-making and rate administration.

By giving for each state the laws in force under each heading, some idea will be gained of the statutory background of the rating picture. How this background may have been improved upon by court decision or by administrative practices may be left for abler hands to discuss. Before starting out, it may be said that the list given does not include such provisions as those in the law relating to accident and health policies, requiring the filing of manuals, but providing no administrative function save to keep them on file. Furthermore, the search of the statutes covered enough of ground to demand haste, and one will rely on this as an exhaustive list at his peril, especially in view of the fact that many legislatures have been recently in session.

SUMMARY OF STATE LAWS AFFECTING RATES

ALABAMA

Anti-trust Law, Criminal Code, 1923, Sec. 5212-5214.

This contains no specific reference to insurance.

Anti-discriminatory and anti-rebating laws.

1. Criminal Code, 1923, Sec. 4589, 4604.
Applying to all companies.
2. Civil Code, 1923, Sec. 8371.
Applying to Life Companies.

Rating Laws

Civil Code, 1923, Sec. 7584, Act. August 23rd, 1919, Sec. 28.
Applying to Workmen's Compensation.

In substance this requires classifications of risks and premiums, basic rates and merit rating schedules, if any, to be filed with the

Superintendent of Insurance; and not to take effect until approved by him as "reasonable, adequate and not excessive." He may withdraw his approval of a rate or schedule if he finds it "excessive, unreasonable, discriminating, or inadequate to provide the necessary reserve."

ARIZONA

Anti-trust Law.

Not found.

Anti-discrimination Law

Rev. Statutes, 1913, Sec. 3408.

Rating Law

None.

ARKANSAS

Anti-trust Law.

Crawford & Moses Digest, 1921, Secs. 5976, 7369.

This section, appearing in two places, makes the right of an insurance company to do business in the state conditional on not being a member of, or a party to, any compact to regulate, fix or maintain insurance premiums on property in the state.

Anti-discrimination Law.

Crawford & Moses Digest, 1921, Sec. 6010.

Applying to Life Companies.

Rating Law

1. Digest 1921, Sec. 6012—applies to all companies.

Requires all companies to file their schedules of rates with the insurance commissioner. All rates must be a fixed percentage of the amount insured and must be uniform for all risks rated under same classification.

Companies may employ a common expert to inspect risks and advise upon the premium to be charged.

2. Digest 1921, Sec. 5962-5975. Act March 3rd, 1919, p. 146. Applies to Fire Companies.

Speaking generally, this authorizes the establishment of rating bureaus and vests in the commissioner power:

(a) To examine the bureaus.

(b) To require the filing of schedules, rates, forms, rules and regulations.

(c) To hold hearings on charges of discrimination and order discriminations removed.

(d) To hold hearings on rating agreements, and make orders disapproving same.

(e) To order general rate reductions, if during the preceding five years the stock companies have made on state business an underwriting profit aggregating five per cent.

Court reviews of his orders under the last three headings are provided.

3. Mention may be made of Act 493 of 1921, Sec. 5. This extends to all classes of insurance the laws relating to life, fire, marine, inland, lightning or tornado. Whether this includes the rating law, one would not undertake to say.

CALIFORNIA

Anti-trust Law.

Not found.

Anti-discrimination Law.

(1) Political Code, Sec. 633 b. Applies to all companies.

(2) Acts, 1917, p. 957, Sec. 14, Dering's General Laws, 1923.

Act 3736.

Applies to Accident and Health Companies.

Rating Laws

Political Code, Sec. 602b.

Applies to Workmen's Compensation.

In effect this authorizes the commissioner to approve and issue as adequate for all carriers a uniform classification of risks and premium rates, and a uniform system of schedule or merit rating. Changes and additional rates are made and issued after a hearing to determine their adequacy.

The schedule must not take account of physical impairment of employees or the number of dependents.

COLORADO

Anti-trust Laws.

Compiled Laws 1921, Sec. 4036-4043. No specific reference to insurance.

Anti-discrimination Law.

Id. Sec. 2528 applies to all companies in part, but chiefly to Life Companies.

Rating Laws

1. Id. Secs. 4397-4398. Laws, 1919, p. 708, Sec. 23-24.

Applies to Workmen's Compensation.

All carriers must file classification of risks and premiums, rates and rating schedules with the Industrial Commission,

which may approve same, or disapprove on the ground of inadequacy. The Commission may withdraw its approval. The rates, etc., do not take effect until approved.

Carriers must not write at rates other than those approved as adequate. Rate cutting and rebating are prohibited.

2. Comp. Laws, 1921, Secs. 2576-2593; Laws, 1919, p. 451.
Applies to Fire Companies.

This requires every company to maintain or be a member of a rating bureau. Regulates such bureaus, and vests in the commissioner the following powers:

- (a) To make examinations.
- (b) To hold hearings on bureau rules and regulations and revise or suspend same.
- (c) To hold hearings on charges of discrimination and order discriminations removed.
- (d) To review and disapprove rating agreements.
- (e) To revise rates. This is conditional upon a showing by stock companies of a five-year underwriting profit in excess of a reasonable amount.

Orders under (b), (c), (d) and (e) subject to court review.

This Act excepts:

- (1) Domestic mutuals.
- (2) Rolling stock of railroads, property in transit and property of common carriers used in transportation.

CONNECTICUT

Anti-trust Law.

General Sts., 1918, Sec. 6503. No specific reference to insurance.

Anti-discrimination Law.

Id: Sec. 4121. Applies to Life Companies.

Sec. 4122. Applies to all companies.

No Rating Law

DELAWARE

Anti-trust Law.

Not found.

Anti-discrimination Law.

Code, 1915, Sec. 601. Applies to Life Companies

Id: Sec. 640. Applies to Surety Companies.

Rating Law

Acts, 1919, c. 204, amending Revised Code, c. 90, Art. 6.

Applies to Employers' Liability and Workmen's Compensation.

Carriers must file classification of risks, normal premiums, rates, rules (including rules as to premium audits and collections of premiums) and schedule a merit rating system with the Industrial Accident Board. These do not take effect till approved as adequate and reasonable. Approval may be withdrawn on ground of inadequacy, unreasonableness or discrimination.

Carriers are required to use rates, etc., approved by the Board.

Schedule rating can be used only when administered by a rating bureau, approved by the Board. Discriminations are forbidden and the Board has power to hear complaints and order discriminations removed. Its orders removing discriminations are subject to court review.

FLORIDA

Anti-trust Law.

Revised General Sts., 1921, Secs. 5719-5729. No specific reference to insurance.

Anti-discrimination Law—Id: Secs. 4268, 5736.

Applies to all Companies, in part, but primarily to Life Companies.

Rating Law

None.

GEORGIA

Anti-trust Law.

Park's Ann. Code, 1914, Sec. 2466.

This prohibits compacts of insurance companies for the purpose of preventing or lessening competition. Penalty, revocation of license until it appears the combination is annulled.

Anti-discrimination Law.

Park's Ann. Code, Sec. 2440. Applies to all companies.

Rating Law

Park's Ann. Code, Supp., 1922, Sec. 3154 U. U. U.

Acts, 1920, p. 206, Sec. 73.

Applies to Workmen's Compensation.

Rates are required to be fair, reasonable and adequate, with due allowance for merit rating. All risks of same kind and degree to be written at the same rate by the same carrier.

Basic rates and rating plans to be filed with the commissioner. Carriers must use rates and plans approved by him. They are not allowed to write at rates less than those approved, save through operation of merit rating plans.

Participating companies are restricted in declaring dividends on Georgia policies to surplus accumulated on Georgia business.

IDAHO

Anti-trust Law.

Comp. Sts., 1919, Secs. 2531, et seq.

Does not refer specifically to insurance.

Anti-discrimination Laws.

Id: Sec. 5026. Applies to all companies.

Rating Law

Acts, 1923, c. 48. Applies to Fire Insurance.

This permits resident insurance companies or persons resident in the state, not officers of a company, to form rating bureaus.

Rates must be filed with director of insurance.

1. Director may review rates to see if schedule has been properly applied.

2. May make inquiries as to organization and operation of bureaus.

3. May examine bureaus at his discretion. Must do so once in three years.

4. May order discriminations removed. Discriminations are not to be removed by increasing rates unless director finds increase justifiable. A court appeal is provided.

Apparently the director has no power to order adjustments of the rates.

ILLINOIS

Anti-trust Law.

Cahill's Revised Statutes, 1923, c. 38, par. 598, et seq.

Does not refer specifically to insurance.

Anti-discrimination Law.

Id: c. 73, pars. 353-356. Applying to Life Companies.

Par. 477. Applying to Accident and Health Companies.

Rating Law

None.

INDIANA

Anti-trust Law.

Burns' Annotated Statutes, 1914, Secs. 3866-3892f.

Does not refer specifically to insurance, but Indiana is said to be a state where the courts have enjoined an insurance rating organization as illegal at common law.

Anti-discrimination Law.

Id: Sec. 4677a. Applying to companies other than Life.

Sec. 4706a. Applying to Life Companies.

Rating Law

Acts, 1919, p. 508. Applying to Fire, Lightning, Windstorm, Sprinkler Leakage, Use and Occupancy and Automobile Fire and Theft.

1. Act requires companies to maintain or be members of rating bureaus. All bureau rates, rules, regulations, etc., are filed with the commissioner before taking effect. The Commissioner after hearing may approve or disapprove same or make such orders as he deems proper. A court review of his orders is provided.

2. The commissioner may address inquiries to bureaus as to organization and operation, and require filing of schedules, forms, rates, rules and regulations.

3. May examine rating bureaus, but not oftener than once in three years.

4. May hold hearings on charges of discrimination and order discriminations removed. A court appeal is provided.

5. May order the rates on any class or classes of business reduced if the aggregate returns of stock companies over a five-year period show an unreasonable profit. If, on the other hand, the experience fails to indicate a reasonable underwriting profit, he must order an increase. In determining a reasonable profit the conflagration hazard is to be given consideration. His orders are subject to court review.

6. He may review rating agreements between companies and has power to remake orders disapproving same. His orders or refusal to make orders are reviewable in the courts.

IOWA

Anti-trust Law. Code, 1924, Sec. 9010.

This explicitly prohibits insurance companies, their officers or agents from entering into combinations as to rates charged for insurance, the amount of commissions to be allowed agents, or the manner of transacting business within the state.

Anti-discrimination Law.

Code, 1924, Sec. 8666. Applying to Life, Cas. Health and Accident Companies.

Rating Law

None.

A rating law applicable to Fire Companies was repealed in 1917.

KANSAS

Anti-trust Law.

Revised Statutes, 1923, c. 50, Secs. 50-112. L. 1889, c. 257, Sec. 1.

This specifically declares unlawful combinations to control the cost or rate of insurance.

Anti-discrimination Law.

See Rating Law.

Rating Law

Revised Statutes, 1923, c. 40, Secs. 40-461 to 40-474, L. 1909, c. 152, am, L. 1917, c. 207, am, L. 1920, c. 45.

Applies to fire, hail and windstorm.

1. Companies must file with superintendent general basic schedules showing rates and all charges, terms, etc., which affect rates or cost of insurance.

2. Superintendent has power to order companies to reduce rates found excessive or to increase rates found inadequate to the soundness of the company. Hearings and a court review of orders provided. Appeals to U. S. Courts forbidden until remedies provided by Act are exhausted.

3. May revoke licenses for failure to comply with the Act.

4. May investigate Fire rates and visit and examine rating and actuarial bureaus used by fire companies. If these refuse to submit to examination, he may forbid companies to use their rates.

(This was a late amendment, and seems hardly in accord with the positive veto of rate making combinations in the anti-trust law.)

KENTUCKY

Anti-trust Law.

Carroll's Kentucky Statutes, 1922, c. 101, Sec. 3915, Act of May 20, 1890.

This does not cover combinations of insurance companies.

Aetna Ins. Co. v. Commonwealth, 106 Ky. 864, 51 S. W. 624.

International Harvester Co. v. Commonwealth, 124 Ky. 543, 99 S. W. 637.

Anti-discrimination Law.

Id: Sec. 656. Applies to Life Companies.

Sec. 762a-19. Applies to all companies.

Rating Law

1. Id: c. 137, Sec. 4955.

Applies to Workmen's Compensation.

(a) Rates must be fair, reasonable and adequate, with due allowance for merit rating.

(b) All risks of same kind and degree of hazard to be written at same rate by same carrier.

(c) Companies must use only basic rates and merit rating schedules which have been filed with, approved and not disapproved by Workmen's Compensation Board.

(d) Companies must make reports to Insurance Commissioner for purpose of determining the solvency of the carrier and the adequacy of its rates.

2. Carroll's Kentucky Statutes, 1922, Sec. 762, b. 25, to 762, b. 35.

Applies to Fire Insurance.

(a) All companies are required to maintain or be members of a rating bureau.

(b) The Auditor may inquire as to bureau's organization and operations and require the filing of schedules, forms, rates, rules, etc.

(c) He may examine bureau at discretion, and must do so every two years, unless an examination has been made by another department within two years.

(d) He may investigate discriminations and order them removed. (No provision for court review.)

(e) He may order rate reductions when experience of stock companies over a five-year period shows an aggregate underwriting profit in excess of a reasonable amount. He must not reduce rates so as to prevent a reasonable aggregate profit. He is required to give consideration to losses and liabilities both within and without the state. (No court review provided.)

(f) He may review rating agreement and has power to make orders of disapproval. A court review of his orders is provided, but not, as in most acts, of his failure to make an order.

LOUISIANA

Anti-compact Law

1. Wolf, Constitution and Statutes, 1920, pp. 1195, 1196, 1202 (Act 86 of 1890, p. 90; Act 90 of 1892, p. 120; (Act 11, G. S. 1915, p. 23).)

No specific reference to insurance.

2. Wolf, Constitution and Statutes, 1920, p. 986; (Act 224 of 1912, p. 509.) Applies to Fire Insurance.

(a) Prohibits combinations for purpose of influencing insurance rates on property in Louisiana.

(b) Companies may employ common agents to supervise

and advise of defective structures or suggest improvements to lessen fire hazard.

(c) Companies required to file affidavits each year that they have not within twelve months entered into any combination for purpose of preventing competition in rates, or governing, controlling or effecting rates in the state.

Anti-discrimination Laws.

1. Constitution and Statutes, 1920, p. 980, (Act 210 of 1908, p. 314.) Applies to Life Companies.

2. Constitution and Statutes, 1920, p. 1009, (Act 82 of 1886, p. 121.) Applies to all companies.

Rating Laws

None.

MAINE

Anti-trust Laws.

Revised Statutes, c. 51, Secs. 57-59; c. 128, Secs. 26-28. No specific mention to insurance.

Anti-discrimination Laws.

Revised Statutes, c. 53, Secs. 129-131. Applies to Fire and Casualty Companies.

Secs. 136-139. Applies to Life Companies.

Rating Laws

Revised Statutes, c. 50, Sec. 6.

Applies to Workmen's Compensation.

All classifications of risks and premiums must be filed with insurance department, and not used until approved as adequate.

The Commissioner may withdraw his approval and approve revised classifications and premium rates.

Acts, 1917, c. 224.

Authorizes commissioner to require filing of specific rates, including classifications of risks, experience data or other rating information.

Commissioner may make investigations to satisfy himself that rates filed are correct and proper.

MARYLAND

Anti-trust Law.

Not found.

Anti-discrimination Law.

Bagby's Ann. Code, Article 48A, Sec. 44. Applies to Life and Accident Companies.

Sec. 45. Applies to Fire and Miscellaneous Companies.

Rating Laws

1. Id: Article 48A, Sec. 92. Applies to Life Companies.

This authorizes commissioner, on report of actuary that a life company is using an insufficient, insecure or impracticable table of rates, to notify the company, make an examination and require the company to cease writing policies at a rate found to be inadequate.

2. *Id.*: Article 101, Sec. 29.

Applies to Workmen's Compensation.

The commissioner has power to require insurance companies to establish and maintain adequate rates.

MASSACHUSETTS

Anti-trust Laws.

General Laws, c. 93, Secs. 1-14.

No specific reference to insurance.

Anti-discrimination Laws.

Id.: c. 175, Secs. 120, 122. Applies to Life Companies.

Secs. 182-184. Applies to all companies.

Rating Laws

1. General Laws, c. 175, Sec. 104.

Applies to Fire Insurance.

Complaints on rates to be heard by Board of Appeal (constituted by General Laws, c. 26, Sec. 8).

Board may make findings as to whether rate is excessive, unfair or discriminatory, and may make recommendations. Findings are public records.

2. General Laws, c. 152, Sec. 52.

Applies to Workmen's Compensation.

Classifications of risks and premiums are to be filed with commissioner and do not take effect until approved as adequate. Approval may be withdrawn.

3. Sec. 53.

This permits mutual companies to group risks for dividend and assessment purposes subject to approval of commissioner.

MICHIGAN

Anti-trust Laws.

Howell's Michigan Statutes, 1912, c. 41, Secs. 2942-2968.

No specific reference to insurance.

Public Acts, 1917, No. 256, Part 2, Ch. II, Secs. 11-14.

Applies to Foreign Fire and Marine Companies.

Companies must enter into undertaking that they will not enter into contracts, etc., the effect of which is to prevent open and free competition within the state. Such contracts prohibited.

Anti-discrimination Laws.

Public Acts, 1917, No. 256, Part 2, Ch. IV, Sec. 6.
Applying to all companies.
Part 3, Ch. II, Sec. 30. Applying to Life Companies.

Rating Laws

1. Public Acts, 1917, No. 256, Part 5, Ch. I, Sec. 10-13.
Applies to Workmen's Compensation.

(a) Classification of risks, premiums and merit rating plans to be filed with commissioner.

(b) Policies to be written in accordance with classifications on file.

(c) Premiums to be reasonable and not discriminate unfairly between risks in application of like charges and credits or between risks having substantially same hazard and some degree of protection against accident.

(d) Deviations from rates on file to be made only after 15 days' notice to commissioner. Must be uniform in application to all risks in class affected.

(e) State Banking Commissioner, Attorney General and Commissioner of Insurance to hear charges of discrimination and may order same removed. Court appeal provided.

2. Public Acts, 1917, No. 256, Part I, Ch. IV. Applies to Fire Insurance.

Companies permitted to maintain rating bureaus subject to anti-monopoly laws. Bureaus to be licensed.

Bureaus must file all rates, rules and regulations with commissioner.

Commissioner has following powers:

(a) To investigate fire rates, including cost of operation, experience of insurers and rating methods.

(b) To determine adequacy and excessiveness of rates and to suspend any rate found excessive and establish a just and equitable rate, based on relative hazards, local conditions, etc. Court review of orders provided.

(c) Rates not to take effect till approved by commissioner. May disapprove in part or revoke approvals.

(d) May inquire into organization and operation of bureau and require filing of schedules, rates, forms, rules and regulations.

Same provision for removing discriminations as in preceding Act.

MINNESOTA

Anti-compact Laws.

General Statutes, 1923, Secs. 10463, 10464. No specific reference to insurance.

Anti-discrimination Laws.

General Statutes, 1923:

Secs. 3766-3769. Applicable to all companies.

Sec. 3425. Life, Accident and Health Companies.

Secs. 3376-3378. Life Companies.

Rating Laws

1. General Sts., 1923, Secs. 3579-3581.

Applies to Domestic Mutual Liability Companies. Permits grouping of rates for dividend and assessment purposes. Groupings to be filed with commissioner.

2. Id: Secs. 3604-3611.

Applies to Fire Insurance. Companies required to maintain or be members of rating bureaus.

Powers of Commissioner:

(a) To make inquiries as to organization and operation of bureaus and require filing schedules, rates, forms, rules and regulations.

(b) To examine bureaus.

(c) To review and disapprove rating agreements, orders subject to court review.

(d) To review bureau rates. May order discriminatory and unjust rates removed and fix rates in lieu thereof. A court review of orders provided.

(e) Id: Secs. 3612-3634.

Applies to Compensation Insurance.

Act creates:

(A) A compensation board, consisting of insurance commissioner, member of industrial commission and actuary of insurance department.

(B) A bureau of which all companies are required to be members.

Duties of Board:

(a) To approve minimum and adequate and reasonable rates for insurance. To approve a system of schedule merit and experience rating. Approvals may be withdrawn. To approve classifications and rules and regulations with reference to compensation rates.

(b) To review acts of insurers, bureaus and agents and enforce compliance with Act. Orders subject to court review.

(c) To supervise and examine bureau and review its rulings on complaint.

(d) May verify pay-roll audits.

Duties of Bureau:

(a) To classify risks, make inspections and apply schedule and experience rating plans.

(b) To establish classifications, make surveys and check pay-roll audits.

(c) To provide means for hearing complaints as to ratings.

Note.—The bureau is required to admit all companies. Participating and non-participating companies are represented equally on governing and rating committees.

Duties of Companies:

(a) Must file rates with Board. Not to change rates except on fifteen days' notice and approval of Board.

(b) Must not write insurance except at Bureau rates and rating plans approved by Board.

MISSISSIPPI

Anti-trust Laws.

Hemingway's Annotated Code, 1917, Secs. 3281-3305. Section 3282 prohibits contracts to fix "The price or premium to be paid for insuring property against loss or damage by fire, lightning, storm, cyclone, tornado, or any other kind of policy." (Amended 1920, c. 313, to allow Fire and Marine Companies to hold stock of other companies.)

Anti-discrimination Laws.

Hemingway's Annotated Code, 1917, Sec. 5064. Applies to Life Companies.

Rating Laws

Acts, 1924, c. 188, applies to Fire and Lightning Insurance.

This creates:

(a) A commission of three, appointed by the governor, the attorney general and the insurance commissioner.

(b) A bureau to be organized by stock fire companies. All stock fire companies to be members. Other insurers may become members.

Companies are required to file schedules of rates and premiums. The bureau submits rates and amendments to the commission for approval.

Duties of Commission:

(a) To approve rates if fair, just to the people of the state, and compensatory to the companies. Rates to be a percentage of amount insured and to be uniform for all stock companies.

(b) To order reduction in rates if aggregate underwriting profits of stock companies, over a five-year period exceed five per cent. The reduction is to be distributed by the bureau.

(c) To supervise and examine bureau and require filing of forms, regulations, etc. Must examine bureau annually.

(d) To order discriminations and unlawful deviations from bureau rates removed. Court appeal provided.

(e) To ascertain majority opinion of stock companies as to commissions and fix uniform scale thereby.

Companies are to use the bureau rates but may make deviations on ten days' notice. May not increase rates except with commission's approval. Act is not to prevent competition between companies.

MISSOURI

Anti-Trust Law:

Revised Statutes 1919, Secs. 9655-9671.

Prohibits agreements for fixing price or premium to be paid for insurance against fire, lightning or storm. Using ratings or rate books of a rating bureau constitutes *prima facie* evidence of membership in an illegal combination.

Anti-discrimination Law:

Revised Statutes 1919, Sec. 6139. Applying to life companies; Sec. 6187. Applying to Life Companies on stipulated premium basis.

Rating Laws:

Revised Statutes 1919, Secs. 6270-6288, am. 1923, S. B. 329, p. 234. Applies to insurance against fire, lightning, hail or windstorm.

This permits companies to use the rates of rating bureaus.

Bureaus may lower their rates at will, but may increase them only after ten days' notice to the superintendent and with his approval.

Powers of Superintendent:

(a) To examine and supervise bureaus. May inquire as to organization and operation and require filing of schedules, rates, forms, rules and regulations.

(b) All increases in rates subject to his approval.

(c) May order the removal of discriminations.

(d) May require statistics of premiums and losses, upon a uniform schedule and classification.

(e) May order reduction in rates, so as to produce a fair and reasonable profit.

Is required to give consideration to conflagration liability, acquisition and administration expenses and investment profits and

earnings. Object of act stated to be to protect public against extravagant methods and speculative administration of funds.

An appeal to the courts from his orders is provided. There is a provision for sequestration of premiums charged in excess of rates fixed by superintendent pending the appeal.

MONTANA

Anti-trust Laws:

Revised code, 1921, Sec. 10901-10915.

No specific reference to insurance.

Anti-discrimination Law:

Id., Sec. 6121. Applying to all companies.

Rating Law:

None.

NEBRASKA

Anti-trust Laws:

1. Compiled Statutes 1922, Sec. 3420.

This declares combinations to prevent competition in insurance of any kind to be a "trust."

Penalty, revocation of license (Sec. 7786).

2. Id., Secs. 3425-3428.

Applying to Fire Companies.

Combinations relating to rates, commissions or manner of transacting business are declared unlawful.

(Provisions for fines, examinations, revocation of license and appeal).

Anti-discrimination Laws:

Compiled Statutes 1922, Sec. 7884, applying to all companies.

Compiled Statutes 1922, Sec. 7886, applying to Life Companies.

Rating Laws:

Compiled Statutes 1922, Secs. 7891-7893.

Applying to Fidelity and Surety Companies.

Department of Trade and Commerce may investigate rates of premium and fix maximum schedules of rates and premiums. Companies must not charge higher rates.

NEVADA

Anti-trust Laws

Anti-discrimination Laws

Rating Laws

} not found

NEW HAMPSHIRE

Anti-trust Laws:

Laws of New Hampshire, 1917, c. 177, p. 698.

No specific mention of insurance.

Anti-discrimination Laws:

No citation.

Rating Laws:

Acts 1921, c. 44.

Applying to Workmen's Compensation Insurance.

a. Companies to file with commissioner classifications of risks and premiums, basic rates and schedule or merit rating plans if in use. These are not to take effect until approved as just, reasonable and adequate for the risks to which they apply.

b. Commissioner may withdraw approval on ground that schedule or rate is unjust, unreasonable or inadequate.

c. Company not to write insurance except at approved rates.

d. Schedule or merit rating plans to be used only when applied by a regional bureau approved by commissioner. The merit modification to be set out in policy.

NEW JERSEY

Anti-trust Laws:

Laws 1913, c. 13.

No specific reference to insurance.

It will be recalled, however, that in New Jersey a combination of insurance companies to fix rates has been held illegal at common law.

State ex rel., McCarter v. Firemen's Ins. Co., 74 N. J., Eq. 372.

Anti-discrimination Laws:

Sec. 116 of Insurance Laws. Comp. Sts. 1910 p. 2875.

Applicable to Life Companies.

Rating Laws:

1. Sec. 29 of Insurance Laws.

Laws 1913, p. 133.

Applies in some degree to all companies, but chiefly to insurers against fire and legal liability of employers.

(a). Discrimination prohibited.

(b). Insurers against fire or legal liability of employers to make insurance only in accordance with schedules filed with commissioner, embodying basic rates, charge credits, terms, permits, conditions, standards, etc., necessary to computation of rates. May employ common experts for making and filing rates.

(c). Every such insurer to furnish insured on demand with information as to rate, or if rated on schedule with copy of schedule.

(d). To provide means approved by commissioner for hearing on application for change in rates.

(e). Commissioner may order discriminations removed, and insurance not written in compliance with schedules on file corrected. Discriminations not to be removed by increasing rates unless commissioner finds increase justifiable.

(f). Does not apply to life, marine and transportation risks other than automobile risks, to insurance on property outside state, to title insurance or mortgage guarantee.

2. C. 178, Laws of 1917, Art. I, Sec. 15, Art. II, Secs. 1-3. Am. 1919, C. 105.

Applies to Workmen's Compensation.

(a) Companies must file with commissioner classifications of risks and premiums, rules, basic rates and system of merit or schedule rating. These must be approved as adequate and reasonable before taking effect. Approval may be withdrawn.

(b) Commissioner authorized to create and supervise bureau or bureaus, to apply classifications, rule, rates, and rating systems.

(c) Companies to write only in accordance with classifications, rates, etc., approved by commissioner and applied by bureau. Merit rating modifications to be set forth in policy.

Bureau:

(a) The Compensation Rating and Inspection Bureau created by the act has following powers:

1. To maintain rules, regulations and premium rates, and adjust same to individual risks on inspection.

2. To secure uniform and accurate audits of payroll by auditors appointed by bureau.

3. To furnish employees information as to rates.

4. To offer reduced rates for improved conditions in accordance with schedule or merit rating plan.

(b) All companies must be members of bureau. Each has one vote in bureau affairs.

(c) A special deputy of commissioner is chairman of bureau and all officers are subject to commissioner's approval.

NEW MEXICO

Anti-trust Law:

Statutes (compilation of 1915), Secs. 1685-1687.

No specific reference to insurance.

Anti-discrimination Laws:

Laws 1923, c. 93, Sec. 16.

Applies to Domestic Mutual Fire, Hail and Tornado Companies.

Comp. 1915, Sec. 2840, applies to Life Companies.

Sec. 2842, applies to all companies.

Rating Laws:

Laws 1917, c. 84, Sec. 8, applies to Domestic Mutual Employers Liability associations.

Rates to be just, reasonable, adequate and non-discriminatory. Superintendent to approve maximum of rates before effective. Companies may group risks for assessment and dividend purposes.

(Note.—A provision in Comp. 1915, Sec. 2868, forbade fire companies to charge rates higher than those in effect Jan. 1, 1879. This was apparently dropped out in redraft of Section, 1923, c. 121.)

NEW YORK

Anti-compact Law:

Consol. Laws, c. 25, Art. XXII, Sec. 340.

No specific reference to insurance.

Anti-discrimination Laws:

Consol. Laws, c. 28, Sec. 65, applies to all companies; Secs. 89-90, applies to Life companies; Sec. 108, applies to Accident and Health Companies.

Rating Laws:

1. Consol. Laws, c. 28, Sec. 67. Applies to Workmen's Compensation. All Carriers except state fund are required to file with Superintendent classifications of risks and premiums, together with basic rates and schedules, none of which take effect until approved as adequate. Approval may be withdrawn on ground that a rate or schedule is inadequate to provide necessary reserves.

2. Consol. Laws c. 28, Sec. 139, 140, 141, 141a, 141b. am. L. 1923, c. 436. Applies to all classes of insurance, except life, marine or transportation hazards other than automobile (Sec. 141a covers aircraft insurance), insurance on property outside state, title and credit guarantee, life and casualty companies on assessment plan, live stock companies and corporations, fire insurance cos. Accident and Health Insurance is excepted from 141b. Section 141 covers surety bonds.

A. Secs. 139 and 140.

These cover (1) bureaus for inspection and adjustment, testing appliances, formulating rules and fixing standards; (2) bureaus for assisting bureaus in formulating, fixing, promulgating and applying rates.

The first class must on request, the second class must, file with superintendent their articles of agreement or association and by-laws, and other information required. They are subject to visitation and examination by superintendent.

B. Sec. 141.

Covers rate making bureaus serving more than one underwriter.

1. These must file articles of association, by-laws, address and list of members and other information requested. Examination by Superintendent at least once in three years.

2. The Superintendent may require them to file all rates, manuals, schedules, rating plans and other information concerning rates.

3. Bureaus and their members must not:

(a) Make rates on condition or agreement restricting the placing of insurance or the rate at which it shall be written.

(b) Discriminate between risks of essentially some hazard, or if a fire risk, between risks in application of like charges and credits or between risks of essentially some hazard and some protection against fire.

(c) Charge licensing or other fees to licensed brokers, or refuse to do business with or present payment of commissions to brokers who will not agree to keep bureau risks or write at bureau rates.

(d) Promulgate rates not in accord with established rules, classifications or schedules.

(e) Interfere with payment of dividends or participating policies.

4. Bureaus must:

(a) Keep records of transactions.

(b) Furnish insured with information as to rate or if rated on schedule a copy of schedule.

(c) Provide means approved by Supt. to hear applications for changes in rates.

5. The Superintendent may order discriminations removed. Discriminations may be removed by increasing rates only with his approval. A court review provided.

C. Sec. 141a.

Covers fire rating bureaus.

1. These must admit or furnish service without discrimination to all authorized insurers. A company may not be a member of, or adopt rates of, more than one bureau rating the same kind of hazards.

2. Schedules, rates, and methods to be reasonable.
3. Risks to be rated.
 - (a) By minimum class rates formally adopted.
 - (b) By specific ratings based on schedule, formally adopted, after inspection.
 - (c) By flat or non-schedule ratings in classes of risks permitted by Superintendent.

4. Insurers must comply with rates and rules of bureau in which it has membership or the rates of which it adopts. May, however, on thirty days' notice to Superintendent and bureau, and with approval of Superintendent make for the ensuing year a uniform percentage addition to or deduction from bureau rates.

5. The Superintendent may order the adjustment of rates on any risk whenever the profit derived from such rate over a five-year period is excessive, inadequate, unjust or unreasonable. He must give consideration to the conflagration hazard. His findings are subject to court review.

D. Sec. 141b.

Covers bureaus for other types of insurance.

1. Are under same requirements as C 1 and 2 *supra*.
2. To fix basis classifications, formally adopted for all risks rated. Departure from basic rates to be in accordance with schedules and rules formally adopted and filed with Superintendent.
3. Insurers are under the same restriction as to compliance with bureau rates and rules and deviation from bureau rates as in the case of fire bureaus. See C 4 *supra*.
4. The Superintendent may order adjustment of rates on any class of risks whenever it is found that rates will produce an excessive, inadequate or unreasonable profit. His orders are subject to court review.

NORTH CAROLINA

Anti-compact Law:

Consol. Sts., 1919, Secs. 2559-2574.
No specific reference to insurance.

Anti-discrimination Laws:

- Id. Sec. 6302 Applying to steam boiler, liability, accident, health, live stock, marine, leakage, credit, plate glass and fidelity insurance companies.
Sec. 6458 Applying to Life Companies.
Sec. 6488 Applying to Accident and Health Companies.

Rating Laws:

Id. Sec. 6388-6394.

Applies to all insurance companies including surety bonds. Does not apply to life, marine or transportation other than auto, insurance on property outside state, insurance on assessment or co-operative plan, title or credit insurance. This act provides regulations for rating bureaus somewhat similar to New York Sec. 141, rates and information concerning rates are to be filed with commissioner at his request.

The commissioner has authority:

- (a) To order discriminations removed. Discriminations not to be removed by increasing rates except with approval of commissioner. No court appeal provided.
- (b) To review rates on complaint. He may make a finding as to whether rate is excessive or uniform and make recommendations which are matters of public record.

NORTH DAKOTA

Anti-trust Law:

Compiled Laws 1913, Secs. 9950-9963.

No specific reference to insurance.

Anti-discrimination Laws:

Id. Sec. 4855 applying to Life Companies.

Sec. 4922 am. 1919, c. 165, applying to all companies

Rating Law:

None.

OHIO

Anti-trust Law:

1. General Code, 1921, Secs. 6390-6402.

No specific reference to insurance.

2. Id., Secs. 9563-9564.

Applies to Fire Companies.

If a company doing business in the state enters into a compact to control rates for fire insurance or rates of commission to agents, the superintendent shall revoke its license, companies permitted to employ common agents to supervise defective structures suggest improvements for lessening fire hazards and advise as to relative value of risks.

Anti-discrimination Laws:

Id. Secs. 9401 and 9403, Applying to Life Companies.

9589-1,

Applying to companies other than
Life.

Rating Laws:

Id. Secs. 9592-1 to 9592-18, Applying to Fire Companies.

Companies are required to maintain or be members of rating bureaus. Bureaus must maintain office in state, are subject to examination and must file schedules, rates, etc., on request.

Deviations from bureau rates to be made only after 15 days' notice to superintendent and bureau and filing of amended schedules showing deviation, which must be uniform for all risks in class affected. Superintendent has following powers:

1. To make inquiries, require filing of schedules, rates, etc., and make examinations.
2. To order discriminations removed. Discriminations not to be removed by increasing rates unless superintendent approves increase.
3. To hold hearings on rating agreements and make orders of disapproval. Orders subject to court review.

No authority given to order rate reductions.

OKLAHOMA

Anti-trust Law:

Bunn's Compiled Statutes 1921, Secs. 11017-11045.

No specific reference to insurance.

Anti-discrimination Law:

Id. Sec. 6721, applying to Life Companies.

Rating Law:

Id. Secs. 6741-6758, Applies to fire, tornado, plate glass and employers' liability. The act creates a State Insurance Board consisting of insurance commissioner, fire marshal, and a third member appointed by governor. It makes no reference to rating bureaus.

Companies are required:

1. To file with board general basic schedules showing rates on all classes of risks and all charges, terms, privileges, and conditions affecting rates or value of insurance. Changes in schedules may be made only on ten days' notice, unless the board permits a shorter notice.
2. Not to do business until schedule is filed, or at different rates from those in schedule. Risks not covered by schedules may be written, but Board must be notified.
3. Not to discriminate between risks of like kind and hazard.

The Board has authority:

If a rate is excessive or inadequate to safety of company to direct the company to file a higher or lower rate commen-

surate with risk. The rate must be reasonable. The orders of the Board are subject to court review. Act does not apply to life, marine risks, growing crops of grain, cotton, or fruit, transportation risks other than auto, insurance on property outside state, title, mortgage guarantee or hail.

OREGON

Anti-trust Law:

Oregon Laws 1920, Sec. 6361, (L 1917 c. 203, Sec. 18,) Applies to all companies. Prohibits insurance companies from entering into compacts to control rates on commissions, or to discriminate against companies because of their plan of doing business or because of affiliation with any boards or associations of companies or for any purpose detrimental to free competition.

Anti-discrimination Laws:

- Id. Sec. 6431, Applying to Life Companies. (L 1917, c 203 Sec. 24)
 Sec. 6362, Applying to all companies. (L 1917, c 203, Sec. 19)

Rating Law:

1. Id., Sec. 6389, Applying to Fire Companies. (L. 1917, c 203 Sec. 22d, L. 1919, c 113 Sec. 1)

Permits organizations of bureaus by resident companies or by resident persons not officials of companies. Bureaus must admit all insurers, maintain office in state and operate without profit; must maintain a "supervisor" to examine applications and daily reports, notify companies of discriminations and violations of act and notify commissioner of failure to correct same. Bureaus, and companies not members of bureaus, must file schedules of rates with commissioner and not deviate therefrom until amended schedules are filed. A company which accepts rates of a bureau must give thirty days' notice of a deviation. Deviations must be uniform for all risks in territorial classification affected. But a company may not file bureau rates less a uniform percentage deviation. Short rate cancellation tables must also be filed.

The Commissioner has authority:

- (a) To make inquiries and examinations.
- (b) To order discriminations removed. Discriminations not to be removed by increasing rate unless commissioner approves. A court review provided. Apparently no authority to order rate reductions.

2. *Id.* Secs. 6396-6397 (L 1917-c. 203, Secs. 22K-22L.)

This provides for the suspension of license of companies which precipitate or conduct "rate wars" and in so doing write insurance at rates less than those on file. If a company in so doing cancels policies and rewrites them at rates less than those provided by schedules when rate war is not in operation, it may not charge back to agents any part of commission, on ground it was not earned.

PENNSYLVANIA

Anti-trust Law:

Not found.

Anti-discrimination Law:

1921, No. 284, Sec. 346, Applying to all companies. Sec. 626, Applying to Accident and Health Companies.

Rating Laws:

1. *Id.*, Secs. 654-655, Applying to Workmen's Compensation.

(a) Classifications of risks, underwriting rules, premium rates and schedule or merit rating plans to be established by one or more rating bureaus, subject to supervision and examination by commissioner, and approved as adequately equipped, to compile rates on an equitable and impartial basis.

(b) Schedule and merit rating plans to be applied by the Bureau. An employer must not be discriminated against because of physical impairment of employees or number of their dependents.

(c) Risk classifications, underwriting rules, rates and rating plans not to take effect without consent of commissioner. His approval may be withdrawn on ground that same are inadequate or discriminatory between risks of essentially the same hazard.

(d) An insurer must not write insurance except in accordance with classifications, rates, etc., formulated by bureau and approved by commissioner for said insurer.

(e) Copies of all policies and endorsements to be filed with bureau.

(f) Sworn reports of premium and loss experience to be filed annually on or before June 30th.

2. *Id.* Secs. 541-552, Applying to Fire and Lightning.

Before doing business, a stock company, and a mutual company or reciprocal exchange which elects to become subject to the act, must file with the commissioner a schedule of rates or be a member of a rating bureau.

Bureaus are required to admit all companies to membership who will agree to abide by rules and are subject to supervision and

examination. A company member of a bureau must give fifteen days' notice of a deviation from bureau rates. The deviation must be uniform on all risks in class affected. Reason for making the deviation must be given the commissioner.

The Commissioner has powers:

- (a) To make inquiries and examinations.
- (b) To make orders disapproving rating agreements.

Apparently no provision for review of discriminations or for reduction of rates.

RHODE ISLAND

Anti-trust Law:

Not found.

Anti-discrimination Law:

General Laws, 1923, Sec. 3800, Applying to all companies;
Sec. 3809, Applying to Life Companies.

Rating Law:

None.

SOUTH CAROLINA

Anti-trust Law:

Civil Code 1922, Sec. 3534, Applying to all companies.

Defines as a conspiracy a combination to fix or limit "the price or premium to be paid for insuring property against loss or damage by fire, lightning, storm, cyclone, tornado, or any other kind of policy issued by any corporation, partnership, individual or association."

Anti-discrimination Law:

Id. Sec. 4108, Applying to all companies.

Rating Law:

Id. Sec. 4117-4133, Applying to Fire Companies.

This permits companies to maintain rating bureaus.

The commissioner's powers are:

- (a) To make inquiries and examinations of bureaus and to require filing of schedules, rates, bonus rules and regulations.
- (b) To review rating agreements and make orders of disapproval. A court review of his orders is provided.
- (c) May order discriminations removed.

(d) May order rate reductions, if aggregate profits of stock companies over a five-year period exceed a reasonable amount. A reduction ordered is distributed by the bureau or the companies, but they cannot be compelled to reduce rates on classifications which have not shown a reasonable profit over a five-year period.

His orders for removing discriminations and reducing rates are subject to review by the Insurance Commission, a Board of three,

appointed by the Governor. An appeal from the Commission to the Courts is provided.

SOUTH DAKOTA

Anti-trust Law:

1. Revised code 1919, Secs. 4352-4364.

No specific reference to insurance.

2. *Id.*, Secs. 9202-9205.

Applying to insurance against fire and loss or damage by the elements. This declares unlawful agreements between companies or agents relating to rates to be charged for insurance, regulating minimum price or premium to be paid for insuring property within state, the commissions of agents or manner of transacting business. Companies are required to file an affidavit each year that they have not entered and will not enter into such an agreement.

Anti-discrimination Law:

Revised code 1919, Sec. 9184, am. Laws 1919 c. 240, applying to all companies. Laws 1919 c. 229, Sec. 11, applying to Accident and Health Companies.

Rating Laws:

- Laws 1919, c. 231.

Applying to fire, lightning, and tornado insurance. Bureaus are recognized. Companies are not to make combinations or agreements for general flat reduction of statewide basic rates, terms, estimates or conditions affecting cost or premiums, except such as are filed with and approved by the commissioner. His approval may be withdrawn.

The commissioner has the usual power to examine bureaus, make inquiries and require filing of schedules, rates, forms, rules and regulations.

As above stated, his approval is necessary to agreements for general advance or reduction of rates. His orders are subject to court review.

TENNESSEE

Anti-compact Laws.

1. Thompson's Shannon's Code, 1918, Secs. 3191a 1-7.

No specific reference to insurance.

2. *Id.*, Sec. 3348a 21.

Applies to fire insurance. Forbids companies or agents to enter into compacts to maintain rates. Agents may form local associations to employ inspectors and experts to prepare rating schedules, etc., but rates suggested to be advisory only. (Sec. 1919 c. 8, c. 33.)

Anti-discrimination Law.

Code, 1896, Sec. 3312, applicable to Life Companies.

Rating Law

1. Public Acts, 1919, c. 24.

Applying to fire, lightning and windstorm insurance. This forbids companies to discriminate between risks in applications of like charges and credits or between risks of same hazard or same degree of protection against fire. The commissioner may require the filing of schedules, rates, forms, rules, etc., and require the submission by the insured of any policy for his inspection.

2. Public Acts, 1919, c. 123, Sec. 40 am. Public Acts, 1923, c. 84, Sec. 4. (p. 309)

Applying to Workmen's Compensation.

(a) Classification of risks and premiums, basic rates and schedule rating plans to be submitted to commissioner. Not to take effect until approved by Governor, Secretary of State and Commissioner of Banking and Insurance.

Approval to be withdrawn if in their opinion a premium rate is inadequate to provide the necessary reserves or so high as to be an unreasonable burden on the employer.

(b) Each company to submit statement of experience and loss ratio and other information to show cost of insurance in each classification.

TEXAS

Anti-trust Laws.

Complete Statutes, 1920, Acts 7796-7809, applying to all companies.

Sec. 7796 defines as a "Trust":

(a) Combinations to fix, maintain, increase or reduce cost of insurance.

(b) Combinations to lessen competition in the business of insurance.

(c) Combinations to fix or maintain standards or figures whereby the price of insurance shall be in any manner affected, controlled or established.

(d) Contracts not to make contracts of insurance at prices below a common standard or figure, or to keep price at a fixed or graded figure, or in any manner to affect or maintain prices, to preclude free and unrestricted competition in the business of insurance, or by which they shall agree to pool, combine or unite any interests in connection with sale of insurance.

(e) Contracts to fix or limit the amount of insurance that may be undertaken.

Anti-discrimination Law.

Id: Sec. 4896. Applying to Fire Companies.

Secs. 4954-5. Applying to Life Companies and in part to all companies.

Rating Laws

1. Id: Secs. 4876-4904. Applying to fire insurance.

It is impossible to give more than a very general outline of this long and extremely verbose enactment, which must be read to be appreciated.

The Act creates a State Insurance Commission consisting of the Commissioner of Insurance and Banking and two appointive members. It has:

(a) The exclusive right to fix, determine, and promulgate maximum rates of premiums to be used by all companies.

(b) To fix, determine and promulgate the rates of premiums to be charged and collected.

(c) The rates fixed must be reasonable. The Commission determines the form of the schedules and provides copies at cost. Rates are fixed by order and notice to companies. Changes and amendments may be made on thirty days' notice. The Commission may make rules for writing unrated risks at rates determined by the company.

(d) The Commission may make and establish uniform forms of policies and forms, clauses and indorsements.

(e) There are provisions for hearing requests of companies for changes in rates and complaints of citizens. A court review of acts of Commission is provided.

Companies must not write insurance at rates in excess of the maximum rate established. If they write at less rates, the lesser rate is applicable to all risks of the same class. An analysis of the deviation must be filed with the Commission. They are required to furnish with each policy written a written or printed analysis of the rate, showing all items of charge and credit, unless such analysis has been previously furnished. They are required to use the policy forms established by the Commission. Clauses and indorsements other than those established may be used only with consent of Commission.

(2) General Laws, 1923, c. 182, p. 408.

Applying to Compensation Insurance. This authorizes Commission created by preceding Act:

(a) To make, establish and promulgate all classifications of hazards and rates of premium.

(b) To prescribe a uniform policy to be used by all carriers. Endorsement to be approved by the Commission.

(c) Rates are to be adequate to risks and consistent with solvency of carrier and the erection of adequate reserves. They must also be reasonable and not confiscatory.

(d) To add a system of schedule rating and experience rating.

(e) To secure data from companies. Are to base rates on an exposure adequate in amount and time, to insure adequate and reasonable rates. May exchange data with other bodies and consult any national body.

(f) To hear grievances of policy holders.

(g) To approve dividends of participating carriers. Not to approve unless adequate reserves are provided. Companies must not use classifications, rates or policy forms other than those approved.

UTAH

Anti-trust Law.

Compiled Laws, 1917, Secs. 4475-4485.

No specific mention of insurance.

Anti-discrimination Laws.

Id: Sec. 1167, applying to Life Companies.

Rating Laws

Id: Sec. 3114, am. Laws 1919, c. 63.

Applying to Workmen's Compensation.

All carriers subject to rules and regulations of Commission, "including rates to be charged and methods of compensation to be used."

VERMONT

Anti-trust Law.

Not found.

Anti-discrimination Law.

General Laws, 1917:

Secs. 5575-5577, applying to Life Companies.

Sec. 5634, applying to Accident and Health Companies.

Rating Laws

(1) Public Acts, 1921, c. 164.

Applying to Workmen's Compensation:

(a) Classifications of risks, premium rates, basic rates and systems of schedule or merit rating to be filed with Commission, and not to take effect until approved as reasonable and proper for the risks to which they apply. Approval of a rate or schedule made by an insurer may be withdrawn if inadequate to provide for obligations assumed by insurer.

(b) Companies not to use premium rates other than those approved by the Commission for them.

(c) Schedule and merit rating systems to be applied only by a regional rating bureau approved by Commissioner.

(d) Merit adjustment to be clearly set forth in policy.

(2) Public Acts, 1919, c. 148.

Applying to all insurance, including surety bonds excepting life, marine or transportation other than automobile risks, and insurance on property outside state.

Bureaus under following obligations:

(a) To file articles of association and by-laws with Commissioner, together with business address, list of members and other information required.

(b) To file schedule of rates when called for by Commissioner.

(c) Not to discriminate between risks of essentially same hazard, or if a fire rate, in the application of like charges and credits or between risks of essentially same hazard and equal protection against fire.

(d) Not to charge fees to licensed brokers nor refuse to do business with broker who will not agree to use bureau rates.

(e) To keep records, inform assured as to his rates, and if risk be rated on schedule, supply him with a copy.

The Commissioner has following powers:

(a) To make inquiries, require filing of rates, schedules, etc., and to make examinations.

(b) To order discriminations removed. Not to be removed by increasing rates unless Commissioner is satisfied increase is justifiable.

Grievances are heard before a Board consisting of insurance commissioner, auditor of accounts and one person named by rating bureau. If the Board find rate excessive, they shall fix a reasonable rate to be binding on all companies doing business in the state.

Orders of Board subject to court review.

VIRGINIA

Anti-trust Law.

No general statute.

(Code, 1919, Sec. 4312., forbidding combinations or agreements to govern and control commissions or compensation paid to agents, repealed, Acts 1923 p. 53.)

Anti-discrimination Laws.

Code 1924, Sec. 4222. Applying to Life Companies and in part to other companies.

Rating Laws

(1) *Id.*: Sec. 4199. Applies generally.

Commissioner to investigate complaints as to unreasonable rates and make reports to general assembly with such recommendations as may be necessary to cure existing evils.

(2) Act, March 21, 1918, am. Acts, 1924, c. 318, Sec. 75, Code 1924, Sec. 1887 (75)

Applies to Workmen's Compensation:

(a) Rates charged to be reasonable and adequate, and all risks of same kind and degree of hazard to be written at same rate by same carrier.

(b) Subject to rules prescribed by Commissioner; basic rates may be modified in accordance with plans of schedule rating and experience rating.

(c) No policy valid until rate has been filed, approved and not subsequently disapproved.

Companies to make reports to Commissioner to show solvency and adequacy of rates.

(3) Acts, 1920, c. 163, applying to fire insurance, Code 1924, Secs. 4314a.-4314p.

Companies must maintain or be members of a rating bureau. Bureaus to admit all carriers to membership agreeing to comply with rules. Companies may deviate from bureau rates on 15 days' notice to bureau and Commissioner, and filing schedule shows amended rates and charges and credits. Deviations to be uniform for all risks in class affected.

Commissioner has following powers:

(a) To make inquiries, require filing of schedules and rates, etc., and make examinations.

(b) To review charges of discrimination and order discriminations removed. Order subject to review by State Corporation Commission.

(c) If returns of Stock Companies over five-year period show underwriting profit in excess of a reasonable amount, may order reduction of rates in classes yielding an excessive profit. Must take into consideration conflagration hazard. Orders subject to review by Corporation Commission.

(d) May make orders disapproving rating agreements. Orders or refusal to make orders subject to review.

WASHINGTON

Anti-trust Law.

Remington's Compiled Statutes, 1922, Sec. 7076. Generally applicable.

This prohibits combinations:

(A) For purpose of controlling rates to be charged for insuring any risk or classes of risks in state.

(B) For purpose of discriminating against company, manager, agent, or broker, because of method of doing business or affiliation or non-affiliation with any board or association.

Anti-discrimination Laws.

Id: Sec. 7077, applying to all companies.
Sec. 7226, applying to Life Companies.

Rating Laws

(1) Id: Secs. 7118-7119:

(A) Applicable to all companies; all companies to file rating schedules with Commissioner. Not to deviate therefrom until amended schedules are filed.

(B) Applicable to Fire Companies.

Residents and domestic companies may organize rating bureaus. Bureaus to file rating schedules with Commissioner. Not to deviate therefrom until amended schedules are filed. Companies instead of filing schedules may notify Commissioner of adoption of rates of a rating bureau with deviations, if any, he intends to make. Deviations must be uniform for all classes to which they apply.

Bureaus are under obligations:

(a) To serve ratably and proportionally all companies, agents, brokers and property owners.

(b) To keep record of work performed.

(c) Not to stamp or examine daily reports or policies.

Commissioner has power to examine.

(2) Id: Secs. 7157, 7158, applicable generally:

(a) Company which precipitates or conducts "rate wars" and writes policies at rate below schedules on file with Commissioner or below rate deemed by him adequate and proper may have license suspended.

(b) If company precipitates or conducts rate war for purpose of punishing or eliminating competition or demoralizing business, and orders cancellation of policies and rewriting of rates lower than schedules when war is not in operation and pays return premiums, it may not charge back any part of agent's commission on ground it was not earned.

WEST VIRGINIA

Anti-trust Law.

Not found.

Anti-discrimination Law.

Barnes West Virginia Code, 1923, p. 601, c. 34, Sec. 15, (Acts, 1913, c. 19.) Applying to Life Companies and in part to all companies.

Rating Law

Id: P. 625, c. 34, Sec. 76b, (Acts, 1913, c. 20, Secs. 1, 2, 1921, c. 149.

Applicable generally.

Rating bureaus must file with Commissioner copy of articles of association, by-laws, business address and list of members and such other information as required.

(1) They must file on request their schedule of rates.

(2) Must not make discriminations or try to restrict plans of insurance.

(3) Must keep records, furnish information to policy holders as to rates, or if property be rated on schedule, supply a copy thereof.

(4) Must not change schedules except on 15 days' notice.

The Commissioner may permit change on less notice.

The Commissioner may examine bureaus. May order discriminations removed. Discriminations not to be removed by increasing rates unless Commissioner approves increase.

Court appeal provided.

WISCONSIN

Anti-trust Laws.

Wisconsin Statutes, 1923, Secs. 133.01 to 133.24.

No specific reference to insurance.

Anti-discrimination Laws.

Id: Secs. 207.01. Applying to Life Companies.

Rating Laws

(1) Id: Secs. 205.01-205.29. Applying to Compensation Insurance.

This Act creates a Compensation Insurance Board consisting of the Commissioner of Insurance, one member of the Industrial Commission and one person appointed by the Governor. Also a Bureau to which all compensation carriers must belong. The functions of the Board are:

(a) To approve minimum adequate price premiums for each classification.

(b) To approve a system of schedule or merit rating.

(c) To approve maximum and minimum expense loadings.

(d) To approve rates for the companies.

(e) Rates or systems of schedule rating not to take account of physical impairment or experience rating.

(f) May withdraw approvals of classifications or rates on 10 days' notice.

(g) May require surveys and reports by bureau.

(h) Payroll audits to be reported to Commission, which may verify same by re-audit and shall do so on complaint.

(i) May review acts of companies and bureaus and compel compliance with Act. Orders subject to court review.

(j) May review expense apportionments of bureau and hear appeals from bureau.

Bureau has power to make by-laws subject to approval of Commission. It must admit all insurers on an equitable basis. Participating and non-participating companies to be represented equally on governing committee and rating committee. Must obtain a license from the Commissioner and is subject to examination by Board.

Its functions are:

(a) To classify risks, assigning each hazard to a classification.

(b) To apply the schedule rating system, make inspections and surveys.

(c) To keep a record of its acts, supply information to employees as to schedule charges and credits, and to provide means approved by Board for hearings with reference to rates and other matters affecting a risk.

Companies are to file their rates and schedules of expense loadings, which are not effective until approved by Board as adequate. In fixing rates they must not use pure premiums less than those approved as adequate by Board but may use higher ones. They must not write insurance at rates other than those approved, subject to schedule modification, which must be clearly set forth in policy.

They are under obligation not to discriminate and to file information with Board as to writings.

(2) Id: Secs. 203.32-203.49.

Applies to fire, lightning, windstorm, sprinkler leakage.

Requires all companies to be members of a rating bureau.

A bureau may be organized by five or more insurers. Must admit an authorized insurer, and each class of companies to have representation on managing committee. Must maintain office in state, and obtain a license from Commissioner.

Duties:

(a) Must file with Commissioner copy of articles of association, by-laws, copies of contracts and agreements entered into with members, regulations and rules.

(b) Must not prohibit members from charging other than bureau rates.

(c) Must furnish information and make re-surveys at Commissioner's request.

(d) Rates to be reasonable and non-discriminatory.

(e) To use a uniform classification and rating schedule established by Commissioner.

The Commissioner may:

- (a) License bureau and pass on regulations and rules.
- (b) May make inquiries and require filing of rates, schedules, etc.
- (c) May examine bureau.
- (d) May order discriminations removed and review rates for purpose of determining whether they are unreasonable or discriminatory. If he finds rate unreasonable, may establish a reasonable rate and order bureau to use one no higher.

His orders are subject to court review.

(e) To approve riders for extra hazards and establish uniform classification of risks.

In addition companies are required to maintain a joint stamping office. This is subject to visitation and examination. Mutuals and reciprocals may maintain own stamping offices.

All writings are reported to stamping office, and the office notifies agent and company of violations of Act, and notifies Commissioner if violations are not rectified.

(3) Id: Secs. 201.52-201.58.

Applies to liability (but not Workmen's Compensation).

Companies are required:

- (a) Not to discriminate, nor use schedule or other rating systems which results in discrimination.
- (b) Not to evade Act by granting favorable rates on other lines of insurance.
- (c) Not to charge or collect unjust or unreasonable rates.
- (d) To file with Commissioner these rates and manual classifications and also systems of rates. Not to use rates other than those on file.
- (e) To make reports as to writings and practices as required, but to report annual premiums renewed and losses paid on or before May 1.

The Commissioner has power:

- (a) To order modifications of schedules or rating plans if they produce discriminating results.
 - (b) To review any rate to determine whether it is unreasonable or discriminatory.
 - (c) May order discriminations removed.
 - (d) May establish a rate which is reasonable and order company to make one no higher.
- Orders subject to court review.

(4) Id: Sec. 201.60.

Applies to all rating organizations:

(a) Companies not to be members of rating organizations not complying with law.

(b) Organizations to furnish service without discrimination to all insurers.

(c) To file with commissioner charter, by-laws, etc., and such other information as required.

WYOMING

Anti-trust Law.

Not found.

Anti-discrimination Law.

Compiled Statutes, 1920, Sec. 5235. Applying to Life Companies.

Rating Laws

Session Laws, 1921, c. 142, Secs. 16-17.

Applies to Fire Insurance.

Companies required to maintain or be members of a rating bureau.

Bureaus required to admit all insurers and maintain office in state.

They must not discriminate.

Companies may vary from bureau rates on fifteen days' notice to bureau and Commissioner, filing amended schedules showing change in rates and in charges and credits.

Variations must be uniform for all risks in classes affected.

Commissioner has power:

(a) To make inquiries, require filing of schedules, rates, etc., and make examinations.

(b) To order discriminations removed.

His orders subject to court review.

(c) If returns of stock companies for five years show unreasonable underwriting profit, may order reduction in rates.

The reduction is applied by the bureaus or companies.

In determining a reasonable profit, he must take into consideration conflagration hazard.

Orders subject to court review.

(d) May disapprove rating agreements.

Orders subject to court review.

This long and detailed analysis was prepared somewhat hurriedly, and with the design of indicating the powers assumed by the state rather than giving a complete picture of the detailed

mechanism of the laws. Certain of the laws providing for bureaus are of great length, and a complete description would run into a wealth of detail. It appears advisable, therefore, to add a few comments on certain features of the Acts above enumerated, and some consideration of the legislative policies involved.

A. *Anti-compact Laws*

Anti-compact provisions applicable to insurance exist in sixteen states. The following table will indicate the salient facts with regard to each:

<i>State</i>	<i>Type of Insurance Affected</i>	<i>Forbids Compacts to Affect</i>
Arkansas.....	All.....	Rates
Georgia.....	All.....	Competition
Iowa.....	All.....	Rates, commissions, manner of transacting business
Kansas.....	All.....	Rates
Louisiana.....	Fire.....	Rates
Michigan.....	Fire (foreign companies).....	Competition
Mississippi....	All.....	Rates
Missouri.....	Fire, Lightning, Storm.....	Rates
Nebraska.....	1. All..... 2. Fire.....	Competition Rates, commissions, methods of transacting business
Ohio.....	Fire.....	Rates, commissions
Oregon.....	All.....	Rates, commissions, competition, discrimination against companies and agents
So. Carolina...	All.....	Rates
So. Dakota....	Fire, loss or damage by elements.....	Rates, commissions, methods of transacting business
Tennessee....	Fire.....	Rates
Texas.....	All.....	Rates, certain methods of transacting business (see outline of Act)
Washington ...	All.....	Rates, discrimination against companies or agents

In certain of these states, rating laws have done much to modify or neutralize these provisions, and in others it is quite possible

that the laws to some extent are permitted to lie dormant. The recent litigation in Mississippi, however, indicates the possibilities that may lie in a law, supposedly dormant, suddenly called into operation.

It is a well recognized fact that rate making on a scientific basis, and above all careful and equitable rate administration, frequently become impossible without a large degree of cooperation, both in assembling and handling the necessary statistical and engineering data, and in applying the rates and rating systems to individual risks.

A vigorous enforcement of an anti-compact law affecting rates and methods of transacting business is very apt to result in a crude and unrefined rating policy, in discrimination, and in a rating service inadequate to the needs of policy holders as well as of companies; also more than probably, in an increased cost of doing business.

The inhibition of combinations to control commissions appears to have been designed for the benefit of agents rather than of the public at large. It has been pointed out more than once that competition in commissions operates distinctly to the detriment of the public, since its only possible effect is to increase underwriting expense and produce higher rates. Neither does it produce healthy conditions in the business. Bidding for business through increased commissions is a familiar device, and a very effective one, and naturally operates to the advantage of the company with the most abundant resources. At least one state with a provision of this sort on its books has by statute undertaken to restrict commissions on compensation insurance; an act thoroughly inconsistent in principle with its anti-compact law. That in recent time both fire and casualty companies have felt it imperative to deal with this question of mounting acquisition costs is a matter familiar to all. The effect of the statutory inhibition if enforced would appear to be costly to the public.

The inhibition in two states of discrimination against companies, agents or brokers appears to be based on local conditions, and to be addressed to the interests of certain insurers rather than of the public at large. The curious inhibitions against "rate warfare" appearing in both states constitute a peculiar contradiction to the idea of the anti-compact law. It is by no means easy to say at what point the state would figure legitimate competition

ended and "rate warfare" began. All competition in rates is rate warfare.

Competition has many virtues, but also many shortcomings. That these shortcomings are recognized by the states is evidenced by the enactments listed above in the line of anti-discrimination laws and rating laws. The enforcement of equality in rates between risks of the same class, just though the principle be, narrows competitive possibilities very noticeably; and once the state enters on a policy of rate regulation, competition becomes more and more a thing of the past. Once a state places on its books a statute recognizing the right of companies to form rating organizations, it in effect issues an open invitation not to compete. If it goes further and adds control of rates whether on the criterion of reasonableness or of adequacy, it places very definite limits to rate competition. If it undertakes to fix rates or to make rates, then competition in rates is definitely abandoned. This is true even when the state does not recognize rating organizations but undertakes to deal with the rates of single companies; for if it fixes a rate for one company, then all companies under the constitutional guarantee of equal protection of the laws are entitled to use that rate. Or, irrespective of that provision, unless the state treats all companies alike, it is settling the competitive issue in favor of the company which it permits to use the lowest rate.

That the principle of the anti-compact laws has left its mark on the rating laws will be hereafter seen.

B. Anti-discrimination Laws

The principle that all persons are entitled to equal treatment by insurance companies is the natural concomitant of the doctrine that insurance is a business public in its nature. The number of enactments on that subject sufficiently indicates its general acceptance, and we may therefore regard it as a settled rule of the game.

It will be noted that some of the laws listed as anti-discrimination laws deal exclusively with rebates. Rebating is in fact discrimination, and it is the discriminatory feature that furnishes the justification of the law. It will further be noted that some of the laws listed as rating laws are merely enlarged anti-discrimination laws, and that every bureau law and not a few of the non-bureau

laws contain definite inhibitions against discrimination and erect machinery for its prevention.

The progress from anti-discrimination laws to rating laws may be traced somewhat as follows:

1. The primary stage is a simple inhibition of which the following are samples:

(a) Forbidding discrimination between insurers or risks of the same class.

(b) Forbidding discrimination between risks of like hazards.

(c) Forbidding discrimination between risks of like hazards and having equal protection against accidents.

(d) Forbidding discrimination between risks in the application of like charges and credits or between risks of essentially the same hazards and having substantially the same degree of protection against fire.

(a) will be recognized as the usual formula used in anti-discrimination laws.

(b) (c) and (d) are taken from rating laws. Some of the fire rating laws refine on the formula still further, but the intent remains much the same.

2. A recognition of the fact that in order to secure equal treatment there must be some regulation of the power to classify. This takes the following form:

(a) Provisions requiring filing of classifications and rates.

(b) Provisions providing for approval of classifications.

(c) Provisions requiring the use of uniform classifications by all carriers.

These are familiar features of rating laws, both fire and compensation.

3. A recognition of the fact that to secure equal treatment there must be standardization of policy provisions. This may take the form of approval of policy forms or the fixing of definite, uniform standard forms.

4. From this it is but a single step to require the filing of rates and entering into questions of the proportionality of rates between classifications.

5. Some administrative machinery is necessary to enforce the foregoing provisions. This may take the form:

(a) Of provisions authorizing the Commissioner to order discriminations removed, a familiar feature of fire rating laws.

(b) Of provisions for a non-company administration of rates. Of this the recognition of bureaus, and the positive requirements in several compensation laws for administration of rating plans by bureaus are samples.

(c) Of provisions for examining applications and policies. Of this the "supervisor" provisions of the Oregon and Idaho fire Acts, the stamping office provision of the Wisconsin Act, and the provisions of the Pennsylvania Compensation Act are samples.

This brings us very naturally to the subject of:

C. *Rating Laws*

Rating Laws are a matter of recent origin. The Kansas law, one of the earliest, was enacted in 1909. The New York law (Section 141), in its original form followed a year or two later. The compensation rating laws have been enacted since 1911. The laws relating to fire companies and fire rating bureaus are mainly framed on a model adopted by the National Convention of Insurance Commissioners in the winter of 1914.

Rating laws of one kind or another exist in the following states:

Alabama	Kentucky	New Hampshire	South Dakota
Arkansas	Maine	New Jersey	Tennessee
California	Maryland	New York	Texas
Colorado	Massachusetts	North Carolina	Utah
Delaware	Michigan	Ohio	Vermont
Georgia	Minnesota	Oklahoma	Virginia
Idaho	Mississippi	Oregon	Washington
Indiana	Missouri	Pennsylvania	West Virginia
Kansas	Nebraska	South Carolina	Wisconsin
Wyoming			

These laws may be divided by subjects as follows:

1. Laws generally applicable:

These are found in:

Arkansas	New York	Vermont	West Virginia
New Jersey	North Carolina	Virginia	Washington
Wisconsin			

The general provisions in Arkansas, New Jersey, Virginia and Washington are of slight scope. The Wisconsin law lays down a few general regulations for rates bureaus. The other four states have definite rating laws, all framed on the New York model, providing for rating bureaus, control of discrimination, and (in New York and Vermont) control of rates.

2. Laws applying primarily to casualty insurance.

(a) Workmen's compensation (and employers' liability)—Alabama, California, Colorado, Delaware, Georgia, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Oklahoma, Pennsylvania, Tennessee, Texas, Utah, Vermont, Virginia, Wisconsin.

(b) Fidelity and Surety—Nebraska, New York, North Carolina, Vermont. (In the latter three states surety bonds specifically included in general Act.)

(c) Plate Glass—Oklahoma.

3. Laws applying primarily to fire insurance.

These are found in:

Arkansas	Massachusetts	New York	South Dakota
Colorado	Michigan	Ohio	Tennessee
Idaho	Minnesota	Oklahoma	Texas
Indiana	Mississippi	Oregon	Virginia
Kansas	Missouri	Pennsylvania	Washington
Kentucky	New Jersey	South Carolina	Wisconsin
		Wyoming	

All of these cover insurance against fire or fire and lightning.

Other types of coverage are specifically mentioned as follows:

- a. Windstorm or tornado
Indiana, Kansas, Missouri, Oklahoma, South Dakota, Tennessee, Wisconsin.
- b. Hail
Kansas, Missouri.
- c. Sprinkler leakage
Indiana, Wisconsin.
- d. Use and Occupancy
Indiana.
- e. Automobile, fire and theft.
Indiana.

4. Maryland is the only state having a rating law applicable to life insurance.

Of these laws we may distinguish three major groups:

A. The general laws as found in New York, North Carolina, Vermont and West Virginia.

These as has been seen are framed upon a common model. The object in the first instance was apparently to give recognition to rating bureaus and provide for supervision, examination, and removal of discriminations. Control of rates was an afterthought. In West Virginia it does not appear at all, and in North Carolina the power is

merely to investigate complaints and make recommendations. In Vermont and New York power exists to revise specific rates.

In recent years the New York law has been amended by the inclusion of one long section applicable to fire bureaus and a second applicable to casualty bureaus.

B. The laws applying to fire and kindred lines.

Of these, the Kansas, Massachusetts, New Jersey, Oklahoma and Tennessee laws deal with rates without reference to the operation of a rating organization. The Massachusetts law provides for a review of rates by a board and a finding as to whether they are excessive, unfair or discriminatory, but publicity is the only remedial agency. The New Jersey law contains powers to correct discriminations and compel compliance with rates on file. The Kansas and Oklahoma laws confer power to correct rates if inadequate or unreasonable.

The other laws with the exception of Texas are bureau laws. Some authorize, others direct the erection of rating bureaus. Mississippi creates a single bureau of which all stock companies are members. The bureaus are in general rate making and rate administrative bodies. The authority of the supervising authorities is in general directed (a) to the correction of discriminations, (b) to the supervision of rating agreements with power to order disapproval, (c) to a certain control over rates.

This latter control does not exist at all under some laws. In most cases where it exists it consists of a power to order a general rate reduction, based on the aggregate underwriting profits of stock companies over a five-year period exceeding a reasonable amount or a definite five per cent., with consideration of the conflagration hazard within or without the state. Reduction is as a rule to be such as to reduce the profit to a reasonable amount. Distribution of the reduction among the classifications is made by the bureaus or companies, sometimes requiring the approval of the supervising official.

Other laws contemplate a reduction, not en masse but by classes, and there are laws which authorize a consideration of single rates.

One state (Missouri) requires advances in rates to be approved by the superintendent.

The question of an adequate return to companies is occasionally mentioned but is on the whole by no means prominent. Mississippi requires the rate to be "compensatory to the companies." Indiana provides for revisions upward as well as downward.

There is some variety as to the provisions relating to filing of rates. Under practically all the laws the supervising official may

call for the filing of rates and schedules. In not a few filing is required.

Deviations from bureau rates are permitted, subject to certain restrictions. Notice must be given to the bureau and to the supervising official. They must be uniform for the class or classes of risks affected. Some states require the filing of schedules showing the new rate and the amended charges and credits. There is some diversity as to whether uniform per centage deviations from bureau rates are permissible. Some states definitely permit it, others as definitely forbid it.

The Texas law, as has been seen, constitutes the state as the rate-making body, and it also apparently administers rates to some extent. The state fixes maximum rates from which the carrier may deviate downward subject to certain restrictions.

C. The laws applying to workmen's compensation.

For one reason or another the bureau plays a less prominent part in the compensation laws than in the fire laws. Doubtless this was due to the fact that at the time the laws went into effect the urge towards common rate making and rate administration was not great.

The general scheme of the compensation acts is to give a supervising official authority to approve rates, as to adequacy, reasonableness or both. Adequacy is a notably prominent feature of the laws—in many states the only expressed criterion. Classifications and rating plans must likewise be approved.

Discrimination plays a less prominent part in these laws than in the fire laws. And yet the possibilities of discrimination are probably greater in this field than in almost any other. Certain laws contain provisions for the administration of the merit rating plans by bureaus. Four laws (New Jersey, Pennsylvania, Minnesota and Wisconsin) provide for bureaus of which all carriers are required to be members. These laws contain additional controls of underwriting practices such as the certification of payroll audits, checking of applications and policies, etc.

Most of the laws contemplate the rate-making function as lodged in the companies, with power of approval or disapproval in the supervising authority. In the bureau states this is performed by the bureau. In Minnesota, however, and to a greater extent in Wisconsin, the supervising board is directed to approve minimum rates and the bureau is treated with relation to this function as acting in an advisory or adjutory capacity.

Deviations from the established rates are as a rule not provided for. So long as the law professes to deal with carriers individually,

this is not necessary. But the practice and spirit of the compensation laws generally is that there shall be no deviation. This is true of the bureau states, with the exception of Wisconsin, which countenances deviations upward from the minima established by the Board, but not downward.

In conclusion, it may be mentioned again that whereas the states very generally started out with the competitive principle well to the forefront, the tendency has been steadily away. This tendency can be mapped out in its several stages with reference to the rating laws already referred to.

The simplest of these laws merely provide for the operation of rating bureaus. This acts, of course, as an invitation not to compete. Still a company does not have to be a member of a bureau. But other laws provide that a company shall maintain or be a member of a bureau. These leave two possibilities of competition (a) between bureau and bureau, (b) by virtue of the permission to make deviations. But then we have laws of the Mississippi kind where all stock companies are forced into a single bureau. Here to be sure the deviation privilege still remains. In the compensation field, however, there are several bureau laws where all carriers, stock and mutual, are forced into a single bureau with no privilege of deviation. Here the competition absolutely ceases, with the exception of the dividend privilege of participating carriers, affected to a degree by the corresponding liability to assessment.

Also on the side of rate fixing by public authorities. In all of the compensation laws and in some other laws as well, the public authorities in one way or another can determine rates that are adequate, reasonable, or both. Now adequacy for rate-making purposes is determined by taking the aggregate loss experience of the carriers concerned, and the aggregate expenses, and comparing the result with the rates. It cannot be done company by company, for the experience of a single company is from the statistical standpoint inadequate as a true criterion for the future. It might perhaps be done by classes of companies, but over a wide exposure the loss experience would in all probability not vary widely. Hence the tendency under these laws is to a single standard for adequacy.

The same, too, may be said for reasonableness. A company is entitled to a reasonable profit. There seems no possible standard

for measuring reasonable underwriting profits save as a percentage of premium income. Hence here again the tendency is to a single standard rate.

Moreover under the constitutional guarantee of equal protection of the laws it is questionable whether supervising authorities could do other than treat all companies of the same class on the same basis.

Therefore, the closer rate regulation is pursued, the more does competition in rates become an impossibility.

The same applies with greater force when the state undertakes directly the making of rates, rather than merely approving or revising them.

Undoubtedly the steps already taken in the line of legislative recognition of rating organizations are eminently wise. The proper making of rates requires a careful evaluation of the essential hazards, over equally careful classification of risks and a just and equitable apportionment of basic rates among the several classifications in accordance with the normal hazards of each class. Nor can full justice be done without according a certain recognition to the peculiar hazards of the particular risk, in so far as that is possible. The accomplishment of this requires an elaborate and costly organization, far beyond the means of the single company. In so far as an attempt has been made to accomplish this, and it is fair to say that in most of the principal lines of insurance such attempt has been made, the building up of rating organizations serving large groups of companies has been found essential. In these lines one may say that rate competition based upon real and general difference in rate levels and in rating methods has come to an end, for if the rate be definitely based upon the hazard, since the hazard remains the same for all companies, so must the indicated rate be approximately the same. Such competition as does exist is directed towards the securing of risks regarded as specially desirable, with the not unnatural result that these particular risks may be able to secure more favorable treatment than others; in other words, it produces that discrimination against which so many legislative vetoes have been pronounced. To curb this type of discrimination, the bureaus can not infrequently accomplish more than the laws, and in so far as their rules and machinery tend towards this end, they deserve not only the countenance but even the encouragement of the state.

Doubtless the state should maintain proper supervision of bureau operations, so as to assure equitable treatment to the public, and fairness to non-bureau companies. With such supervision, bureau operations make for sound underwriting, justice, and the checking of a vicious type of competition.

Hence it is not difficult to see why these steps have been taken. Certain states, indeed, have gone a long step further, and produced situations where a company has no option whatever. The state creates a bureau and requires all carriers to be members, prescribes the bureau functions and exercises a peculiarly thorough supervision. This may be considered in a way the logical result of the argument for the existence of rating bureaus; for if competition in rates is impossible and if the bureau method is effective to secure fair treatment not only for the public but for the companies, then this may be best secured by leaving no loopholes, and through a single organization applying the same rule to all companies, enforcing compliance with its rules, and adherence to its rates without possibility of deviation.

It is not such a very long step from a situation like this to the situation where the state decides to do without the bureau and discharge the rating functions itself. The extent to which such a step carries the state into the internal affairs of companies is evidenced in a manner not without a certain humor by that clause in the law of the only state which has as yet taken this step, solemnly and explicitly declaring that collection of premiums is a function of the insurance companies. It is of course by no means impossible that a state actuary might compute rates as accurately as a bureau actuary, and that state inspectors and functionaries might perform their duties as honestly and impartially as similar employees of a bureau. It seems, however, highly improbable that a state board could achieve the requisite balance between underwriting needs and the interest of policy holders as successfully and satisfactorily as an organization operated by those most vitally concerned.

This raises the question, how far may the state profitably go in undertaking the regulation of rates? The laws cited indicate a variety of legislative opinion and on this point underwriters are by no means of one mind. The answer given will, of course, depend on the object the particular respondent is desirous of achieving.

Legislation is framed from the public standpoint, and it is probable that the ultimate answer must be given, not in accordance with the desires of any particular group of underwriters (though not, one would expect without consideration of the proper interest of all underwriters) but in terms of the public interest. The public is interested in obtaining its insurance as cheaply as is consonant with reason, not denying to the companies a reasonable return, but not acceding to them an exorbitant profit. It is interested in a rating system honestly and impartially administered which accommodates itself as closely as possible to the conditions affecting the particular hazard. It is a matter of some interest to us all whether this result is more likely to be achieved by the state rate-maker, the compulsory non-partizan bureau, or the system which permits the exercise of individual initiative or permits groups to work out rating problems in their own way, evolving systems fitted to their own type of organization. Doubtless the legislatures have erred in attributing to the competitive principle greater possibilities of good than it was calculated to afford, even to the extent of setting it up as a fetich and sacrificing to it all the possibilities of good that may flow from combined effort. The old idol has fallen from its high estate. It does not follow, however, that the legislatures will do well in sacrificing it too expeditiously on the altars of the great god Regulation.

AUTOMOBILE RATE MAKING

BY

H. P. STELLWAGEN

The scientific development of Automobile rates was delayed for a long time by the lack of necessary statistics. For many years the establishment of rates was largely a matter of underwriting judgment supplemented by a meager volume of statistical fact. The growth of the business was so rapid that such statistical data as were tabulated from time to time were wholly insufficient as a basis for the solution of the new developments and refinements in the rating process which had to be established from one year to another. New methods were introduced and new underwriting classifications established for which there existed no statistical information. In fact, statistical classifications to correspond with new underwriting classifications were established after the latter were created with the hope that at some time in the future the statistics so accumulated might be used to prove the soundness or the incorrectness of the innovations adopted.

In the last two or three years, however, there has become available for rate making purposes a vast mass of accurate, finely divided experience data, and with the availability of that information the rate making technique has taken definite form and structure. The result has been that some of the old judgment theories have been substantiated by the developed facts, while others have been altered or entirely abandoned. Today it can be truly said that all the rates in the Automobile Manual are scientifically developed from known facts, with the exception of rates on unusual classifications and coverages which are so infrequently written as to preclude the possibility of the accumulation of sufficient data; and in regard to those, underwriting judgment is still applied.

INTRODUCTORY

Before considering the actual problems involved in rate making, it might be well to describe the Automobile rates for each form of coverage written, and to touch on the factors which determine the differentiation in those rates.

The Casualty companies write three forms of coverage, Public Liability, Property Damage, and Collision insurance, and the Collision form is sub-divided into Full Coverage, \$50 Deductible, and \$100 Deductible. The rates for all these forms vary first, by territory, second, by the type of car insured, and third, by classification. There is a further distinction in the rates for gasoline and steam cars and the rates for electric cars.

For rating purposes the United States is divided into a number of territorial schedules (in the 1925 Automobile Casualty Manual there are fifty schedules). Schedule 1, which applies to New York City, takes the highest rates, and Schedule 50, which includes the rural districts of the South and West, takes the lowest rates. As may be supposed, these territorial schedules reflect the degree of congestion of traffic and population in different communities and the severity of the automobile hazard.

All automobile risks are divided into four types, known as private passenger cars, commercial cars, public automobiles, and automobile dealers and garages. The private passenger type includes any gas or steam automobile of the usual private passenger type of construction used for pleasure and/or business purposes and excludes any automobiles used for renting and livery work, or for the business of demonstrating or testing. Further, the type includes any automobile of the private type which has been altered by the attachment of a small box to permit artisans and mechanics to transport tools and materials, or to permit salesmen to carry samples, excluding, however, wholesale or retail store delivery. The commercial group includes automobiles of the truck or delivery type, used for the transportation or delivery of goods or merchandise and other business uses, but not for the carrying of passengers for a consideration or the business of demonstrating and testing. Private passenger type automobiles which have been altered for the purpose of wholesale or retail store delivery as well as certain other kinds of vehicles, such as invalid carriages, ambulances, and hearses are also included in the commercial group. A public automobile is any automobile used to carry passengers for a consideration and includes private livery automobiles, public livery automobiles, taxicabs, jitneys, buses, school buses, and funeral cars. The automobile dealers and garages division includes automobiles operated by public garages, automobile sales

agencies and service stations, automobile manufacturers, and automobile schools.

The third factor underlying rate variation is the classification of risks within each type. The Public Liability and Property Damage rates on private passenger cars vary by four symbol groups designated, W, X, Y, and Z, which reflect a variation in the physical attributes of the different makes of cars. The Public Liability and Property Damage rates on commercial cars vary first, according to the business of the assured, and second, according to the load capacity of the truck. Under the public automobile type, there is a variation by broad classes, such as private livery, public livery, taxis, and jitneys, and the last named classification is further sub-divided according to the passenger carrying capacity of the vehicle. There are really no classifications of the automobile garage and dealer's type, apart from the separation of storage garages from the regular public sales agency and repair shop. For Collision insurance on all types of cars there is a variation by ten symbol groups, which reflect the relativity of cost and type and construction of the different makes, and beyond that there is a separation into two age groups, the rates on new cars being higher than the rates on old cars.

The premiums for cars of the private passenger, commercial, and public types are flat charges per car per year, whereas the rates for the automobile garage and dealers classification are rates per \$100 of payroll.

AUTOMOBILE STATISTICAL PLAN

Properly compiled statistics are the basis of rate making, and it therefore seems quite necessary to describe in some detail the methods of keeping experience data on automobile risks. In the first place, separate data are tabulated for Public Liability, Property Damage, and for each of the three forms of Collision insurance. For statistical purposes, the United States is divided up into five hundred forty territorial divisions, which for purposes of coding and tabulation are condensed to two hundred fifty-one. These territorial divisions give the following:

1. An individual experience for each city of 100,000 population and over.

2. An individual experience on each of the territories suburban to very large cities.
3. Combined experience within each state on all territories immediately surrounding the cities with a population of 100,000 and over.
4. Combined experience within each state on all cities with a population of 25,000 to 100,000.
5. Combined experience within each state on all territories immediately surrounding the cities with a population of 25,000 to 100,000.
6. Experience for the remainder of each state (all area in each state lying outside the territories enumerated in 1 to 5).

The data on each coverage in each of these territorial divisions are further divided according to the four general types of risks and then there is a further subdivision according to the rating classification. Thus on private passenger cars there are four symbol divisions for Public Liability and Property Damage, and on commercial cars there are fifty-nine business and load capacity divisions for the same types of coverage. The data on Collision insurance are tabulated by symbol groups and also by age groups. Under each of these many thousand statistical classifications is recorded the number of cars insured, the premiums written, the losses paid, the losses outstanding, and the number of claims directly attributable to the cars insured.

The statistical unit of exposure is the car-year, (that is, one car insured for a period of twelve months) as respects the private, commercial, and public types, and for the garage type, the unit is \$100 of payroll. In order to preserve the unit of exposure intact, cars written for less than a year are counted as a fraction of a car year. Thus a car written for six months is one-half a car year, a car written for nine months is three-quarters of a car year, and so on. With this information it is possible to compute loss ratios, pure premiums, and claim frequencies,—that is the number of claims per one hundred cars insured.

TABULATION OF THE DATA

As a rule, two tabulations of the data are made for each line of insurance and for each type of risk;—one tabulation by individual territories with all rating classifications combined, and one tabulation by rating classifications with all territories

combined. Sometimes the tabulation by rating classification is made for three broad territorial divisions,—that is, for large cities, for medium sized and smaller cities, and lastly, for the rural districts. It is found more advantageous to make these two tabulations, because if one tabulation were made showing each rating classification separately under each territorial division, the data would be too finely divided to be dependable for rate making purposes. In actual practise, the first tabulation is used to establish an average rate for a particular community, and then this average rate is in turn divided up into rates for the different classifications by the application of a set of differentials obtained from an analysis of the second tabulation.

Usually the experience for at least three, and sometimes four, policy years is used in the establishment of a given set of rates. In making Automobile rates, it has been found possible to use to advantage the incomplete data on the latest policy year. For example, in the rate revision undertaken in the Fall of 1924, the experience for the policy year 1923, brought down to December 31st, 1923, was used in making the rates for 1925. In other words, there was a lag of but one year between the latest experience year and the year for which the rates became effective.

TREATMENT OF THE INCOMPLETE POLICY YEAR

The data for the incomplete policy year are converted to an earned basis by the application of earned factors to the exposure and premiums, both of which are of course reported on a written basis. These earned factors are calculated on the basis of the ratio of the pure premium indications of previous policy years reported at the end of twelve months to the pure premium indications of those same policy years reported at the end of twenty-four months. The following example will show those developments on the Public Liability experience for private passenger cars:

Policy Year	As of Dec. 31st	Cars	Losses Incurred	Pure Premium	Ratio
1920	1920	530,403	\$5,889,647	\$11. 10	53. 7
	1921	505,015	10,435,054	20. 66	
1921	1921	675,554	7,035,048	10. 41	56. 9
	1922	647,597	11,852,942	18. 30	
1922	1922	837,591	7,531,237	8. 99	58. 6
	1923	807,818	12,385,385	15. 33	

It will be observed from the foregoing tabulation that the ratios developed represent a combination of two factors, the one an earned factor and the other a decreasing cost factor. The finally developed pure premiums for the policy years 1921 and 1922 reported as of the end of twenty-four months after the inception of each, show a steady trend downward. In other words, the second twelve months' indications of each of these policy years are a bit better than the first twelve months' indications. (Prior to 1920 there was an upward tendency which reached its peak during the 1920 policy year.) Had the finally developed pure premiums remained constant from one year to another, the ratio, instead of increasing gradually, would probably have been about 55%. As a matter of fact, it has been demonstrated by the tabulation of other data for which loss costs remain stationary from one year to another, that a true earned factor of 55% shows itself from one year to another. Of course, when an incomplete policy year is converted to an earned basis, it is quite essential that a decreasing or increasing cost be taken into account with the earned factor, so that in the example just given, a factor of 57% or 58% might conservatively be applied to the written cars and premiums for the incomplete year.

PRINCIPLES OF RATE MAKING

There are two principles of rate making which are so woven into the rate making process that it seems advisable to explain them in detail, apart from the actual rating technique. Later on it will be indicated how these principles work themselves in as an integral part of the mathematical development of rates. The first of these two principles may be stated as follows: Whenever an individual community develops an experience of dependable volume, then the rates for that community shall be predicated on its individual data. The second principle, which has to do with the stability of rates, merely enunciates the idea that a certain permanence should be given to the rating schedules and that violent fluctuation from one year to another should be avoided. The first principle involves the setting up of a criterion for a dependable volume of experience, and the second principle is worked out by injecting into the rate making process

the whole principle of experience rating, and involves the application of credibility factors to the experience indications.

CRITERION FOR DEPENDABLE EXPOSURE

The problem of dependable exposure was discussed by Mr. A. H. Mowbray in an article contained in Volume 1, of the *Proceedings* of this Society, page 26. Mr. Mowbray employed the integral descriptive of the probability that if n trials are made of an event whose probability of success on a single trial is p (where $p + q = 1$), the number of successes will lie between $p n - s n$ and $p n + s n$; that is,

$$P = \frac{2}{\sqrt{\pi}} \int_0^{h s n} e^{-t^2} dt$$

where

$$h^2 = \frac{1}{2 p q n}$$

Applied to the automobile problem, this integral may be interpreted as the probability, if n cars are insured against a hazard involving an accident frequency p , that the number of cars having accidents will lie between $p n - s n$ and $p n + s n$, where $p n$ is the expected number of accidents.

An exposure may be assumed to be dependable if the probability is high that the value produced thereby is within, let us say, 10% of the most probable value. Thus if we assume the value of the foregoing integral to be .9, *i. e.*, the probability to be 9 in 10 that the variation will not be more than 10% of the most probable value, and solve for n , we have

$$n = 2 \left(\frac{1.16}{.10} \right)^2 \cdot \frac{1 - .05}{.05} \text{ or } n = 5113.$$

In other words, a city ought to develop an exposure of approximately five thousand earned cars before its experience can begin to receive any credence. Communities developing less than that exposure can hardly be treated on their individual merits, and combinations of those territories must be resorted to in order to produce a volume of experience which is dependable. It develops, for example, that the remainder of state territory in

the majority of states does not develop enough experience individually so that it can be rated individually, and it is therefore necessary to combine the "remainders" of a number of states in which the rural hazard may be assumed to be somewhat similar. This combination does no violence to the indications of any particular territory, but assists in the establishment of a closer approximation of the hazard of the group.

STABILITY OF RATES—APPLICATION OF EXPERIENCE RATING PRINCIPLE

The experience for the respective territories and rating classifications often varies considerably from year to year, especially for those groups which develop low exposures. Inasmuch as Automobile rates are revised at frequent intervals, usually once a year, it is quite necessary that some method be developed for ironing out the fluctuations in the experience indications. If the experience indications for particular cities and classes were followed literally from one year to another, it would be impossible to achieve any stabilization in the rating schedules, with the result that agents and policyholders alike would be continually disturbed by radical increases and decreases in rates. It is therefore necessary that the chance fluctuation of the data be eliminated and that the true trend of the experience be ascertained. This end may be accomplished by compromising the rate indicated by the latest experience indications with the rate in force.

Assume for example, that the rate in a particular city is \$100 per car and the latest experience indicates the necessity for a rate of \$130. No doubt the experience does indicate that the hazard has grown worse, but it is not likely that it has grown worse to the extent indicated by the experience. Now the rate in force has a certain authority. It is the going rate developed in accordance with the experience of the past, and therefore cannot be disregarded altogether. It would therefore seem wise to modify the existing rate not to the full extent indicated by the latest experience, but only part way. Let us ascribe a credence of 60% to the rate in force and a credence of 40% to the indicated rate. On that assumption, we would establish a rate of \$112. Now it may be that a year from the establishment of that rate

the experience will improve to the extent that the \$112 rate might be continued in effect for another year. On the other hand, the unfavorable indications which pointed to the need for a \$130 rate this year might again develop a year later, in which event the \$112 rate would be increased still further, let us say to \$120.

The problem of obtaining credibility factors can apparently be treated by the same method of reasoning that was applied in the development of the experience rating plan for Workmen's Compensation. (See "The Theory of Experience Rating" by Albert W. Whitney, in the *Proceedings* of this Society, Volume IV, page 274). In that case it was necessary to balance the credibility of the risk experience against the credibility of the class experience. In this case it is necessary as a guide to future rates to balance the credibility of this year's experience against the credibility of the previous years' experience as represented by the going rate. In the former theory it was assumed that the frequency curve for the hazard of the risks belonging to a class would be a normal probability curve, having the hazard of the class as the abscissa of its middle point. In the present case it seems reasonable to assume similarly that the frequency curve giving the hazard of the year in question will be expressed by a normal probability curve whose middle point will be the hazard indicated by the going rate. With this assumption the form of the credibility factor will be the same as in the case of Workmen's Compensation and can be represented by

$z = \frac{n}{n+k}$ where n is the number of cars insured and k is a constant.

Unfortunately as in the corresponding Workmen's Compensation case, there is no practical criterion by which to determine k . We may, however, make use of the integral referred to previously in the discussion of dependable exposure, namely

$$P = \frac{2}{\sqrt{\pi}} \int_0^{hsn} e^{-t^2} dt$$

$$\text{where } h^2 = \frac{1}{2pqn}$$

Values of $p = 1/20$, $s = 1/400$, and $n = 50,000$ give us a value of

P of .99. We are therefore abundantly justified as a practical matter in assuming that an exposure of 50,000 cars is sufficient to base rates upon, or in other words, for this number of cars we may assume the credibility to be unity. Since the formula

$$z = \frac{n}{n+k}$$

cannot as it stands be made to give a value of $z = 1$

for a finite value of n , we have assumed another law which has this property and which produces the same general effect, viz., $z : 1 :: \sqrt{n} : \sqrt{50,000}$, in other words, the credibility for n cars is to the credibility for 50,000 cars, as \sqrt{n} is to $\sqrt{50,000}$.

It may be noticed that the formula $z = \frac{n}{n+k}$ and the expression for the probability already referred to, viz.,

$$P = \frac{2}{\sqrt{\pi}} \int_0^{hsn} e^{-t^2} dt \text{ or } P = \phi(hsn),$$

plotted as a function of n , both have the same form; they pass through the origin and approach unity asymptotically. The formula $z = c\sqrt{n}$ gives on the other hand a parabola passing through the origin but reaching unity at a finite point.

The credibility factors so developed are applied to what would be known in experience rating as the "actual departure," that is, the difference between the rate in force and the indicated rate. For example, in the case recited above where the rate in force was \$100 and the indicated rate \$130, the actual departure would be \$30. On the basis of the risk's exposure, a credibility would be developed, say of 40%, and this factor would be applied to the \$30 difference. The resulting amount of \$12 might be considered the "allowable departure," and this would be added to the rate in force, thus producing \$112 as the proper rate for the territory.*

DERIVATION OF AVERAGE TERRITORIAL RATES

It was indicated previously that two distinct tabulations of the statistical data are made, one by territories with all classifications

*NOTE: The author is indebted to Mr. A. W. Whitney for his assistance in the development of the mathematical theory in connection with the credibility factors.

combined and one by classifications with all territories combined, and it was also pointed out that the former was used for the derivation of average rates for individual territories. There are nine distinct steps in the process of establishing territorial rates, and these are listed below:

1. Calculation of weighted average pure premiums for three or four policy years.
2. Selection of pure premiums with regard to trends and local conditions.
3. Test of the selected pure premiums and their reduction to the experience indications of the latest policy year converted to an earned basis.
4. Derivation of indicated premiums by applying the overhead expense loading to the adjusted pure premiums.
5. Establishment of the actual departures between the rates indicated by the experience and the rates actually in force.
6. Establishment of credibility factors for individual territories.
7. Establishment of the allowable departures obtained by applying credibility factors to the actual departures.
8. Determination of indicated rates by applying the allowable departures to the existing rates.
9. Test of the indicated rates and their final adjustment on the basis of the experience for the latest policy year.

A brief explanation of each of these items follows:

1. *Calculation of Weighted Average Pure Premiums.*

In order to bring into play a large quantity of statistical data, the exposure and losses incurred for the four latest policy years are combined for each individual territory, and weighted average pure premiums are established from the combination. The experience for the latest available policy year which is reported on a written basis, is converted to an earned basis and included with the data for the three policy years preceding it. In some cases it is found that the indications of the earliest years are not representative of expected future conditions, and in those cases only the latest two or three years' experience is used. For example, in establishing the 1925 Public Liability rates on

commercial cars, the experience for the policy years 1921-23 inclusive was used, but the experience for the year 1920 was excluded because the experience for that year represented the exceptionally high costs produced by post war conditions, and did not represent conditions as they might be anticipated for 1925.

2. *Selection of Pure Premiums.*

After weighted average pure premiums are established, the individual experience for each territory is reviewed in order to determine whether the average pure premium so established is representative of the hazard, or whether further modification of the pure premium is necessary. Particular attention is paid to the trends in the experience and if, for example, a distinct trend downward should be noted in a particular territory, then a pure premium below the average is selected as representative of the anticipated hazard. Furthermore consideration is given to any local conditions of recent development which might influence the compiled experience either favorably or adversely.

3. *Adjustment of Selected Pure Premiums.*

After pure premiums have been selected for the individual territories, they are all brought down to the loss level of the latest available policy year. This adjustment is made as follows—The written cars reported for the latest available policy year are first reduced to earned cars by the application of a reduction factor. The earned cars are then multiplied by the selected pure premiums in the respective territories, and the products so obtained are summed up in order to find out the total countrywide losses which might be expected on the basis of the selected pure premiums. These losses are compared with the actually incurred losses for the latest available policy year, and if the indicated losses should be higher than the actually incurred losses, horizontal reduction is made in all the pure premiums selected; conversely, if the indicated losses should be lower than the losses actually incurred, a horizontal upward adjustment of the pure premiums is made.

4. *Derivation of Indicated Premiums.*

After pure premiums have been selected in regard to local conditions and trends, and after they have been adjusted to the level of the latest experience indications, it becomes possible to establish indicated gross premiums by dividing the selected pure premiums by one minus the overhead expense loading. The expense loadings used in establishing the 1925 rates are as follows:

	P.L.	P.D.	Coll.
Unallocated Claim Expense.....	.07	.11	.08
Administration Expense.....	.08	.08	.08
Inspection & Bureau Expense.....	.005	.005	.005
Taxes.....	.025	.025	.025
Acquisition.....	.175	.20	.20
Field Supervision.....	.075	.05	.05
Total.....	.43	.47	.44

The foregoing are based on the New York State Casualty Exhibit for 1923.

5. *Calculation of the Actual Departure.*

At this point in the rating process, the principles of experience rating are injected. The indicated rate established on the basis of the latest experience is compared with the average rate in force, and the difference between the two noted. This comparison, of course, implies the calculation of the present average rate in force and that is done by applying the ascertained distribution of cars by classes to the class rates for the various territories. If the indicated rate is greater than the rate in force, the actual departure is designated by a plus sign. If the indicated rate is lower, it is designated by a minus sign.

6. *Establishment of Credibility Factors.*

Credibility factors for individual territories are calculated on the basis of annual earned car exposures. An assumption is made of the number of cars which a city ought to develop in order to have its rate based entirely on its indications, and the number of cars thus assumed is given a credibility value of 100%. Thus, in respect to the Public Liability coverage on private passenger cars, the assumption is made that a city ought to de-

velop an annual earned exposure of fifty thousand car years before its rate can be predicated entirely on its own indications. The credibility factors for territories developing less than fifty thousand are developed in accordance with the following formula:

$$\frac{\sqrt{50,000}}{\sqrt{n}} = \frac{1.00}{z}$$

On the basis of the foregoing equation, a city developing an annual exposure of seven thousand car years would have a credibility factor of 37.5%.

7. *Calculation of the Allowable Departure.*

The allowable departure—that is, the amount to be added to or subtracted from the existing average rate—is obtained by multiplying the actual departure by the credibility factor. Assume, for example, that the existing average rate in a given community is \$100 and that the latest experience indications point to the need for a rate of \$120, and assume further that the territory's exposure has earned a credibility of 40%. In this example the actual departure would be +\$20, and the allowable departure only 40% of that amount, namely, +\$8.00. The procedure is the same, of course, when the rate required by the latest experience indications is below the rate in force.

8. *Determination of Adjusted Indicated Rates.*

The adjusted indicated rate is obtained, obviously, by reducing the rate in force by the allowable departure if the experience indications point to a decrease in rates, or by increasing the rate in force by the amount of the allowable departure in case the experience shows the need for an increase. In the example cited in connection with the preceding step, the adjusted indicated rate would be \$108.

9. *Final Adjustment of Indicated Rates.*

The scale of rates produced in the preceding step of the analysis will not necessarily produce a premium income consistent with the experience indications for the reason that the use of credibility factors has a tendency to hold the whole level of rates up where the experience indicates the possibility for a decrease in

most territories, and tends to keep the level down when the experience shows the necessity for an increase in most territories. It is therefore necessary to make a still further adjustment of the entire level of indicated premiums. This adjustment is made by comparing the expected countrywide premium income on the basis of the indicated rates with the actually needed countrywide income on the basis of the total losses incurred for the latest policy year. The indicated rate for each territory is multiplied by the earned cars for the territory, and the products so formed are summed up for the entire country. This gives the expected premium income on the basis of the reported exposures. By dividing the total losses incurred for the latest policy year by one minus the overhead expense loading, the needed premium income is obtained. The needed income can then be compared with the expected income and if the expected income is higher than the needed income, horizontal reductions are made in the indicated rates. On the other hand, if the expected income is below that needed by the loss experience, horizontal increases are made.

DERIVATION OF RATES BY CLASSIFICATIONS

Thus far the discussion has been confined to the derivation of average territorial rates. These average territorial rates have been derived from a statistical tabulation showing the experience of all classifications combined under individual territories. The rate Manual does not, of course, show average rates for territories, but rather distinct classification rates for each territory schedule, and it therefore becomes necessary to make another tabulation of the data by individual classifications. It is not necessary, however, that classification experience be tabulated for the various territorial divisions. In fact, a tabulation of such detail would be worthless for rate making purposes, inasmuch as the volume for an individual class in an individual territory would in all likelihood be small and productive of misleading results. It is usual, therefore, to make one tabulation by classifications for the country as a whole, and to apply the results derived from such tabulation to all individual territories.

It has been demonstrated that the relativity in the class hazard does not vary appreciably from one territory to another. It may be said with some reservations that the distribution of cars by

classes is constant in the various territorial schedules. To be sure, certain classes dominate more in the large cities, for example, than they do in the rural districts, yet that domination is usually not sufficient to require the use of more than the one set of differentials.

The tabulation by classifications is used primarily for the establishment of a set of differentials which reflect the relativity of the class hazards. The experience of the two latest policy years is usually sufficient for that purpose. The following example will show how the symbol differentials are established for Public Liability insurance on private passenger cars:

Symbol	Policy Year 1922		Policy Year 1923	
	Car Yrs. Exposure	Pure Premium	Car Yrs. Exposure	Pure Premium
W	400,269	\$12.50	316,368	\$12.32
X	347,305	15.58	257,212	15.10
Y	130,906	21.69	90,304	19.23
Z	37,450	25.90	19,369	20.70
TOTAL....	915,930	\$15.53	683,253	\$14.52

Differentials

1922	1923
.805	.848
1.003	1.040
1.391	1.324
1.665	1.426
1.000	1.000

Symbol	Combined Pure Prem.	Differential
W	\$12.42	.823
X	15.37	1.018
Y	20.69	1.371
Z	24.15	1.600
TOTAL.....	\$15.09	1.000

After the differentials have been established, it is necessary that they be checked against the percentage distribution of cars for the latest policy year in order to ascertain if they produce exactly unity. The distribution of cars among the various symbol groups varies slightly from year to year because of the increased popularity of the cheaper and lighter cars, and for that reason it is important that the differentials produce the correct result on the basis of the latest available distribution. In the foregoing example the differentials applied to the percentage distribution of cars for the policy year 1923 add up to .99 as the grand average, and it is therefore necessary to raise each of the differentials approximately 1% in order to have the ultimate rates produce the proper premium income.

The differentials for other types of cars and for other kinds of coverage are produced in exactly the same fashion as the differentials for the Public Liability coverage on private passenger cars. For commercial cars it is necessary to establish differentials reflecting the relativity in cost between the four classifications by business of the assured, and further for the three subdivisions by load capacity. For Collision insurance one set of ten differentials by symbol group is established and these are applied directly to the average pure premium for a given territory. The resulting symbol rates are in turn divided into rates for new and old cars by the application of a further age group differential.

CONCLUSION

The system of rating outlined in this paper has been developed only within the last two years, and was used in the rate revisions of 1923 and 1924. It is by no means perfect, and no doubt will be modified quite materially after more experience has been gained in the application of these methods to rating problems as they develop from year to year. The principles involved seem fundamentally correct, and it is to be hoped that greater refinement and exactitude will come about in the course of time.

REVIEWS OF PUBLICATIONS

RALPH H. BLANCHARD, BOOK REVIEW EDITOR

Statistical Methods Applied to Economics and Business. Frederick C. Mills. Henry Holt & Co., New York, 1924. Pp. xvi, 604.

The purpose and place of this book in the literature of statistics is probably best shown by the following quotation from the author's preface; "This book deals with methods of combining and analyzing such observations, (quantitative observations of facts) with primary emphasis upon materials drawn from the fields of economics and business." As this statement implies, the collection and editing of statistical material preliminary to its analytic study is not discussed and methods of analysis not closely adapted to economic studies, if introduced at all, are discussed very briefly. The student wishing an adequate discussion of the Pearson or other systems of frequency curves, for example, must seek elsewhere.

Again quoting from the preface, "The purpose throughout has been to write for the learner not for the finished master, and the explanations have been prepared with the needs of the former in mind." The author might have added that he has tried to adapt the presentation to the equipment of the student with limited training in mathematics. This conception of the public for which he is writing has necessarily influenced the author in regard to the subject matter considered, its arrangement and the method of exposition.

After an introductory chapter designed to show the importance to the business man of statistical methods, the subject of graphics is taken up. A considerable part of the chapter is occupied with a discussion of rectangular coordinates (natural and logarithmic scales) and the plotting of mathematical equations which most of our members and students will find old ground. The chapter cannot be said to be a critical or exhaustive study of graphic methods, though it closes with a reproduction of the standards adopted by the American Statistical Association. It is rather an exposition of the graphic methods of which use is to be made later in the text.

The study of frequency distributions forms the subject of the next three chapters, the usual methods of organizing and describing such data being carefully explained, including standard and short methods of finding averages and measures of dispersion and skewness.

Apparently for pedagogical reasons, instead of going on to correlation the continuity is interrupted here and the practical aspect is brought forward in a discussion of index numbers. Index numbers of prices are chosen as illustrative material though other kinds of indices such as those of wages and the cost of living are also considered. The nature and purpose of index numbers, the influence of price groups on the problem of the data to be used and of price variation on that of the average which will give the best number are discussed and the bases of existing numbers are described and compared. There is also a presentation of the tests emphasized by Fisher in the development of his "Ideal Index" and the arguments for that index, though the author does not commit himself to an agreement that it is best for all purposes. The practical problem of collection of data for prices and weights is also emphasized.

It is natural to pass from index numbers to the analysis of time series, and in the next chapter are considered the graphic and moving average methods of finding trends as well as the representation of trends by mathematical functions fitted by the method of least squares. Following this is a chapter devoted to the measurement of seasonal and cyclic variations. Four methods for determining seasonal variation are described in sufficient detail to enable the student to apply them in a practical case, viz., those based on the arithmetic means of monthly items, on the average of the median interval in the frequency distribution of the percentage departures of the original items from the calculated trend, on the same function of the departures from the twelve months' moving average recentered, and on link relatives. There is a brief but pointed critical comparison of their merits.

Because indices of physical volume of production have usually been indices of departure from normal rather than of absolute production, this subject matter is taken up at this point rather than with the preceding consideration of index numbers.

The determination of the trend of a time series being in fact

a problem in correlation, a natural transition is found to the subject of correlation. The treatment of this subject departs considerably in its approach from the traditional in that the coefficient of correlation is first presented as a comparison of the scatter of the values about the line of regression with that about the mean of the dependent variable. The other aspects are adequately shown, but this first approach, I think, facilitates the student's appreciation of the significance of correlation and especially the transition to the case of nonlinear correlation. Before this is taken up, however, the methods of studying correlation of cyclic variations in time series are explained.

The chapter on "Estimation" I have found leaves many students in considerable confusion as to the reliability of various statistical methods. While this is perhaps regrettable, it has the offsetting advantage of instilling caution. The propriety of including it in an elementary text is perhaps debatable.

While technical flaws cannot be found in the manner of presenting multiple and partial correlation, I am inclined to question its place in an elementary text particularly when earlier in the text, in connection with estimation, it is pointed out that linearity of correlation cannot usually be assumed safely (p.454). Here (p. 514) it is noted that the method is limited to cases where a linear relationship between the variables or unique functions of them can be found.

The defense to these criticisms may well be that the text, though adapted to the needs of elementary students, is not intended to be limited to their use.

Chapters XV and XVI, "Elementary Probabilities and the Normal Curve of Error" and "Statistical Induction and the Problem of Sampling," hardly come up to the standard of the remainder of the book either in clarity or adequacy of treatment. But this is material that is abundantly and well covered elsewhere.

In Appendix A is given a brief explanation of "The Method of Least Squares as Applied to Certain Statistical Problems" and in Appendix B a good glossary of symbols.

The method of exposition throughout is to point out a problem by using a specific set of economic data and to explain the method of solution, using that problem as an example, closing the discussion by a summary of principles and working rules. Proofs of formulae are generally relegated to footnotes. The

work is well illustrated by graphic charts, there being nearly ninety such charts. Each chapter is followed by a well selected list of references and there is a six page bibliography at the close as well as a satisfactory index.

The type is clear and the arrangement is good. Some minor typographical errors have been found but I understand these are being corrected on reprinting.

I have indicated some criticisms above but after two years' use of this text in its present form or in the preliminary mimeographic edition, I believe it is the best text for an elementary study of business statistics that has come to my attention. There are, however, statistical methods which should be known to the actuary whether dealing with life or casualty insurance which, properly I think, are not adequately covered in this book.

A. H. MOWBRAY.

Statistical Method. Harry Jerome. Harper & Bros., New York, 1924. Pp. xxiv, 395.

A book must be considered in the light of the purpose for which it is written; the professional statistician will find little to interest him in Professor Jerome's book, but the insistent demand for a simple and comprehensive text dealing with elementary principles amply justifies its existence. One is very favorably impressed by the clarity of presentation and the logical arrangement of subjects. Comparatively few persons possess the mathematical training necessary to follow the discussions of the more advanced books on the subject and yet there is a great need for training in the interpretation of figures on the part of executives, employees and students of business.

Some digressions from the ordinary methods of presentation may be noted, consisting of the early introduction of graphic methods, the connection of the subjects of unreliability and dispersion, the exemplification of principles in current index numbers and the emphasis on time series and so-called "business barometers." In the selection of topics I think the author has very accurately sensed the needs of the average business man and college student. He has included considerable valuable material, carefully classified, on the sources of statistical facts, a treatment of the theory of probability and error, a chapter on "business

cycles and barometers," some laboratory exercises and data as a basis for same.

In connection with the latter I cannot refrain from commenting. Few persons appreciate the difficulty in obtaining satisfactory problems because of the limitation on the student's time, the necessary restriction to individual principles and the desirability of practical illustrations. It is comparatively easy to prepare an "exercise," which is merely a set of facts upon which a student mechanically performs certain directed operations, often consuming an inordinate amount of time, for a result which is apparent before he begins the exercise. A problem, however, (in this connection) is a set of facts to which the student applies his discretion and ingenuity and reaches a (preferably) debatable conclusion. This volume, it must be said to its credit, appears to contain problems.

It is unfortunate that a chapter on "units" has been omitted because they are an important factor in the final usefulness of the collected facts. The procedure of separately describing and evaluating the various averages I do not believe a satisfactory method of treatment from the reader's standpoint. On this, however, there might easily be justifiable difference of opinion. It would seem that index numbers which, in their ramification, involve a large number of statistical principles, might appropriately be dealt with at the conclusion of a book and Professor Jerome has apparently almost, but not quite, reached this same conclusion. The link-relative method is, perhaps unintentionally, over-emphasized, and more space might profitably have been given to other methods of measuring seasonal fluctuations.

This volume may be recommended to those preparing for examinations, to the executive who desires a plain description of elementary principles and for use as a college text.

ROBERT RIEGEL

Elements of Statistics. Frederick C. Kent. McGraw-Hill Book Company, New York, 1924. Pp. xi, 178.

During the past two years, some ten or twelve books on elementary and intermediate statistical methods have been published, and these, with two exceptions, seem to be unsuited in many respects for the use of students preparing themselves for statistical or actuarial work. The present book ranks far down

the list of these recent publications. The book may serve very well as a text for some of the courses in statistics which are offered in the commercial departments of high schools; it seems, however, to be lightweight, flimsy material for use in college classes. The wide variety of treatment displayed in the group of recently published texts indicates that there is a sizeable task for the American Statistical Association's Committee on Educational and Professional Standards. There seems to be a distinct need for stating the essentials of sound practice in the teaching of statistics.

It seems hardly worth while to burden these pages with a detailed catalogue of the inadequacies of Professor Kent's book; a few examples will suffice. In Chapter II, the student is told that "statistical data are of two kinds: primary and secondary. Primary data are those which appear in original form and have not been combined into complex units the characteristics of which may be determined by study Secondary statistical data include those which have been taken from primary data sources, tabulated and made available for use." This is an example of the turgid style of the text. Statistics happens to be a subject where rigid definition and thorough exposition are as important as in plane geometry! For an example of definition and consistency in statistical discussion, these younger authors with the urge to print ought to read Professor Pearl's statistical chapter in his "Modes of Research in Genetics," or the first five chapters of Professor Pearson's "Grammar of Science."

Another gem is found on pages 16 and 17, "Methods of Collecting Primary Data." "A third process of collecting data is that of estimates. These are sometimes made on the basis of records, but may also be made on the basis of direct material. A good example of the latter is found in the American Experience Tables (*sic*) of mortality, in which life expectancy is based upon the number and conditions of deaths." What does that mean? And so, we stumble through the book until we come to the chapter on correlation. Here we are told that "in general, the problem (of correlation) is to determine how far a group of like things which are called 'causes' will be accompanied or followed by another group of like things which are called 'effects'."

The recent flood of statistical texts in the United States is likely to create an extremely bad impression abroad where fewer and better books have been published. An elementary text

especially should be written with regard to exact definition, clearness, brevity, force and consistency. Authors abroad have been more successful in this regard. The elementary texts of Charlier and Wicksell are models, and if translated into English would probably sweep the American market. The American Statistical Association's Committee would do well to consider what steps should be taken to head off further texts, "books written from books," until a group of practicing statisticians can get together and outline a text which is really worth while.

E. W. KOPF

Mathematical Theory of Life Insurance. C. H. Forsyth. John Wiley and Sons, New York, 1924. Pp. vii, 74.

The most striking and refreshing thing about this book is the introduction. So far as I am aware it is the first textbook on the mathematics of life insurance in English for use in colleges in which the author takes the trouble to explicitly distinguish between *a priori* and empirical probability. The whole doctrine of life insurance statistical inference is based upon observed relative frequencies and it is most important to tell the student at the outset that he is dealing with empirical probabilities and that the probability of a person of a given age surviving a year cannot be calculated in the same manner as the throw of a pair of dice. The fact that Dr. Forsyth has spent much of his time with statistical rather than actuarial interpretation perhaps may account for this departure. It is to be hoped that future textbooks on actuarial theory will continue the practice set up in this introduction.

The first chapter gives a brief though good account of the composition of the mortality table and this is clinched by an excellent set of examples to illustrate its use. The chapter on pure endowments and annuities is treated from the point of view of discounting for interest the sums needed to provide for the number living at succeeding ages as shown by the mortality table. It is to be regretted that the author did not build upon his introduction and make direct use of the theory of probability in this and the following chapter on life insurance. In both these chapters there is a splendid opportunity to illustrate and apply the theory of mathematical expectation. This would prove an illuminating addition to the usual method which is given here

and in every other textbook. As compared with the amount of space devoted to joint life insurance it seems to the reviewer that the treatment of life insurance based on single lives in chapter III is not full enough. It should be noted that, in this chapter, the attention of the student is called to the importance of the probability point of view in calculating net premiums.

Perhaps the fullest treatment of any one subject is that accorded valuation of policies. A very good account is given of the different standards of valuation now employed by life insurance companies and the formulas for the usual types appear. Prospective and retrospective methods, verbal interpretation, Fackler's accumulation formula, full and modified preliminary term valuation and the Illinois Standard are all given a place. The chapter could be improved by an account of methods of computation of reserves—particularly the continuous methods employed on calculating machines.

The concluding chapter includes a brief exposition of several proposed laws of human mortality—De Moivre's hypothesis, and the formulas of Gompertz and Makeham. The application of Makeham's formula and uniform seniority to joint life calculations is explained and a number of exercises are given to illustrate the theory.

The book is intended for use in a one semester course although it is stated that it might serve for a year's course if enlarged upon by the instructor. I rather doubt the desirability of such an extension; indeed, I should imagine it would have to be enlarged upon somewhat to make a full two hour course for one semester. Dr. Forsyth has written so well in these 74 pages that one regrets that he did not expand it to twice this size and develop more fully the headings of the various chapters. However, as stated in the preface, perhaps it is just as well to leave this to the instructor. As matters now stand, it is undoubtedly the best short textbook on the mathematics of life insurance in English for use in colleges in a one semester two or three hour course.

JAMES W. GLOVER.

Mathematical Tables. Howard Chapin Ives. John Wiley and Sons, Inc., New York, 1924. Pp. vii, 130.

This book contains the following tables: Six place logarithms of numbers from 1 to 10,000, with proportional parts; squares,

cubes, square roots, cube roots, and reciprocals from 1 to 1054; logarithmic sines, cosines, tangents, and cotangents to six places of decimals for every minute of arc; natural sines and cosines to five places of decimals for every minute of arc; natural tangents and cotangents to five places of decimals for every minute of arc; and a number of smaller, mostly one-page, tables of inches in decimals of a foot; minutes in decimals of a degree; fifth and five-halves powers and fifth roots; circumferences, diameters to tenths; circumferences, diameters to eighths; areas of circles, diameters to tenths, areas of circles, diameters to eighths; four pages of trigonometric formulas; eight pages of explanations of the uses of the various tables.

It is a well bound, pocket-size book, and the type is clear, although small. Much information of a tabular kind is condensed in a minimum number of pages. It should be particularly useful to engineers.

JAMES W. GLOVER.

Charts and Graphs. Karl G. Karsten. Prentice-Hall, Inc., New York, 1923. Pp. xi, 724.

One more book on charts comes to my desk for review and "one more book on charts" goes through my mind as I survey its beautiful limp leather cover—the trappings added by Prentice-Hall. But it comes well-introduced and seeking to offer satisfactory reasons why the public should take note of it. A title-page quotation from Leonard Ayres insists on the importance of cultivating graphic methods, and an introduction by Carl Snyder, statistician of the New York Federal Reserve Bank, pleads the economy of time and effort which goes with charts, and also the clearer conceptions of growth and change. "So I think," says Mr. Snyder, "it has been a worthy service that Mr. Karsten has performed in writing such an encyclopedic and exhaustive work upon the subject." Mr. Karsten acknowledges the introduction in a four-minute preface in which he states that his arrangement of the book has been philosophic rather than encyclopedic, evolutionary rather than alphabetic. And then he proceeds to write a book of 724 pages. But he is right. The book is philosophic rather than encyclopedic and I suspect that it will be recognized as a standard, if not *the* standard, work on charts and graphs for some time to come.

Mr. Karsten has modestly refrained from calling himself a statistician in the pages of his book, and here and there has left unexplained certain intricate problems—left them for the statisticians, as he says—as for instance, the method of fitting curves by least squares. The particular task he has set for himself has been to *write his subject down* to the non-technically trained business man or other worker who has use for charts. It is doubtless true that the imposing array of technical terms with which the subject is infested has been a hindrance to its broadest usefulness among business men—with its ordinates, its abscissae, ogives, parabolae, exponentials, logarithms and what-nots; and Mr. Karsten has set about to call these things names and to prove that they are not fearful and formidable. He has done a first-class job and has done it with the hand of an artist.

Part of the explanation of the huge size of the book is this endeavor to say difficult things in simple language and to create, before he gets into a difficult subject, an atmosphere of ease and confidence among his readers. I have always insisted that the essential parts of statistical graphics could be written on thirty-five printed pages and I still believe it, but the task which the author of this book has done probably could not be accomplished as well in less space. His approach to the subject of logarithms and log charts is an ideal illustration of his methods. An introductory chapter on the genealogy of numbers carries an interest for its own sake and would almost certainly be read through by any one who began it. But before the reader is aware of it, he has found out, in the course of the chapter, what a logarithm is. This is followed by a chapter on the law of organic growth (geometric growing, the statistician would say) and another on rate of change analysis, and the trick is done.

The body of the book is divided into seven parts, covering (1) non-mathematical charts; (2) amount of change analysis; (3) rate of change analysis; (4) special analyses; (5) calculating charts; (6) two- and three-dimension data; and (7) conclusion. It is not worth while to discuss all this material in detail for its general character has been indicated sufficiently in what has been said already about the book. At a few points the author has, in his terminology, departed from established usage, and that is to be regretted. But the offenses have not been sufficiently glaring or sufficiently numerous to deserve more than passing

notice. He speaks, on p. 308, of frequency curves as having sometimes been called pictograms; a "zoned frequency curve" on p. 338 is really a regression curve in a correlative table; he seems willing to think of all quantitative distributions as frequency distributions. But, as said before, these cases are few and widely scattered and for the book as a whole it is quite impossible to disagree with his methods or to consider that he is proposing any but practices that are most thoroughly defensible in principle. There are few books that can measure up to that standard.

His section on calculating charts represents an attempt to make more popular among statistical offices and business men a type of device that has long been used by the engineers, and he has drawn generously on standard engineering books for his material. In his next section he has one chapter of seven pages on population maps—a quite inadequate presentation of the subject. But again one can cheerfully pass over this omission to recognize the quality and completeness of his treatment in those portions which will be most often used by the business office (1) amount of change analysis and (2) rate of change analysis. BRUCE D. MUDGETT

Graphic Statistics in Management. William Henry Smith. McGraw-Hill Book Company, New York, 1924. Pp. vii, 360.

This book appears at the fag-end, let us hope fervently, of the epidemic of texts on graphic statistics which began in 1914. There seems to be no room for a volume on descriptive graphics which reiterates in each chapter the few basic principles of the art which have been set forth much more succinctly in the preliminary report of the Joint Committee on Standards for Graphic Presentation.* These have been reproduced in Professor Pearl's "Medical Biometry and Statistics" pages 138-143, and elsewhere. There is no need to string out the application of these principles over a three or four-hundred page book, especially if it is accompanied by very crudely executed charts with much needless "explanatory" text. Fifteen or twenty pages ought to be enough for the graphic practice which can be used in a business establishment.

In fact, over-emphasis upon "graphic control" during the epidemic of charts, graphs and what-nots six years ago, caused

**Quarterly Publications*, American Statistical Association, 1915, pp. 790-797.

many a business man to scuttle an otherwise commendable system of executive control. The heads of business establishments have also had to fend off exactly twenty-three separate movements directed at saving executive time and energy. It is a monument to the fairness of the average administrator that most of these plans, including graphics, were given a try-out. At the present time, American business is recovering from the several onslaughts of enthusiastic specialists in one thing or other, and is using the few elements of each of these "movements" which have stood the test of time and common sense. A business office of sufficient size to warrant the employment of a statistician can get along famously if it has also a draftsman who can space properly and letter artistically, and if its graphic practice is governed by the few principles which were laid down by the Joint Committee on Graphic Presentation. An example of the extreme simplicity of graphic work is afforded by the manual prepared by the American Telephone and Telegraph Company for use by its member-companies, and by Colonel Leonard P. Ayres' "The War with Germany." These show that sound graphic practice can be described within a few pages. In insurance administration, especially, the tendency is toward simplification, freedom from fads, and sound scholarship. Practical experience has shown that whanging the tin-pan of specialism is only a cloak for inadequate knowledge of the fundamentals of the business. There are signs of a revival of interest in the branches of learning which support the institution of insurance and of impatience with ephemeral fads and fancies,—graphics, for instance.

E. W. KOFF

Manual of Charting. Edited by Thomas S. Adams, Edwin C. Bosworth, Richard T. Ely, Adelaide R. Hasse, Jeremiah W. Jenks, M. V. O'Shea, E. A. Ross and Albert Shaw. Prentice-Hall, Inc., New York, 1924. Pp. ix, 106.

This volume, which is one of the "Business School Series," was written, as the editors state in the preface, "to help the inexperienced to such an understanding of graphics as will enable them to continue the study intelligently." They further state that "the need has come for a simple elementary book stripped of technicalities and yet presenting the fundamental facts of graphics with accuracy and authority." The subject has

been presented in a logical manner by dividing it into three parts. In the first part graphic charts in general are discussed, in part two the various forms of chart are explained and in part three different methods are recommended for the use of graphs in accounting and bookkeeping.

Under "Graphics in General" (Part One) one chapter each is devoted to the discussion of the function of graphs, statistical sources, equipment and methods of conversion of statistics into graphs. Although the book is written for beginners persons of experience will find some valuable suggestions in the chapter on "Equipment." In the chapter on "Conversion of Statistical Tables into Graphs" is included a set of standards for the construction of charts with which everyone engaged in the construction of charts should be familiar.

The fifth chapter, which composes the entire second part of the book, contains an exposition of the various kinds of graphic chart together with many timely suggestions relative to their construction. Chief stress is laid upon general-purpose charts or those which present records of economic and social conditions. General-purpose charts are divided into two classes; 1, Plan; and 2, Comparison. Plan Charts are further subdivided into three general forms: First, Organization; Second, Procedure; and Third, Floor charts. Comparison charts are divisible into five distinct forms: 1, Map; 2, Disc; 3, Block; 4, Bar; and 5, Curve charts. Under map-charts dot, tack and ribbon-maps are classed as types of the general form while curve-charts are further subdivided into two general types employing either arithmetic or logarithmic curves.

We find this apology (Page 64) for the breaks in the arithmetic curve; "The 'curve' is actually formed by a series of straight lines connecting the points of observation that are plotted on the scales. These straight lines, however, when viewed in perspective, often have the appearance of curves. Thus it may be said that the curve-chart derives its name from the general visual effect. . . ." Perhaps we should not insist upon a rigorous explanation of curve in a book of this character but the foregoing remarks could hardly have been written by one who is familiar with the rudiments of analytical geometry. The breaks in the curve are due to faulty observation. It is necessary to apologize merely for incomplete data.

Like most proponents of the graphical method of presenting facts the authors have gone to extremes in suggesting uses for graphs by applying them to accounting and bookkeeping statements. It is inconceivable that an executive could extract so-called accounting information relative to his business more readily from charts than he could from the various statements with which he is supplied. The executive needs exact information, graphs supply approximate information. A graph unsupported by the figures from which it was derived is practically meaningless. If the executive comprehends the basic figures, as he almost invariably does, he has little need for a graph derived therefrom. The field of usefulness of the graph is limited. In its field it is indispensable. The writer has always felt that the graph is useful principally to present facts in a quickly understandable form to persons who previously had little or no knowledge of the information presented.

The volume is well supplied with illustrative charts which are both informative and interesting. Without any attempt to verify the figures used it is the writer's opinion that accurate information is presented throughout. Persons whether of great or slight experience who are engaged in constructing or using graphic charts would do well to become familiar with this text.

W. P. COMSTOCK

Social Insurance, What it is and What it Might Be. Alban Gordon. Fabian Society and George Allen & Unwin, Ltd., London, 1924. Pp. x, 150.

This is a very concise but very carefully prepared outline of the present system or systems of social insurance in Great Britain, a criticism of its more or less obvious shortcomings, and a program for revision, extension and unification. It thus appears that the plan of the book is very similar to that by Professor Joseph Cohen, and it is significant that two such books should appear at the same time, indicating the wide awake interest in this problem. Of course, it is no coincidence that the books appeared when the labor party was in the heyday of its powers, and the affiliations of Mr. Gordon are indicated by the publication of its pamphlet by the Fabian Society.

The substance of this book has already appeared in articles in

The New Statesman, *National Insurance Gazette*, and elsewhere, but evidently these articles have been written more or less in accordance with a definite plan. The work is a consistent book and not merely a reprint of independent articles. The first part reviews rapidly, concisely, but accurately, without tedious details which are unnecessary for a lay reader, the subjects of health insurance, unemployment insurance, accident insurance, burial insurance, civil pensions and such correlated subjects as the poor law, prevention under present insurance legislation, and a brief criticism of the plans for insurance by industry which had been agitated in England about a year ago. The second part definitely outlines a scheme for unified social insurance. There really is very little that would appear strikingly new in the first part of the book, but it appears necessary from the point of view of the average reader to lay the basis for the outline of the new scheme.

That the British system of social insurance is not ideal in its construction and that the first ten or fifteen years of its existence have demonstrated very clearly many of its short-comings is, of course, well known to any student of the subject. When the subject of social insurance was alive in this country some six to ten years ago, many of these shortcomings were described in eloquent and sometimes intemperate language. The difference between such criticisms and that which Mr. Gordon is making is, however, a very important one. Many of the American criticisms were used for the purpose of discrediting the very idea, while the author's criticism is throughout clearly based upon a constructive purpose, and though it may apply to many provisions of the law, does not apply to the basic underlying principles. These, on the contrary find in him a very ardent advocate. He points out the inadequacy of benefits under most of the branches of social insurance, the faulty actuarial basis which resulted in an excessive surplus in health insurance, and a serious deficit in unemployment insurance, the very expensive and inefficient method of administration of health insurance through so-called approved societies, the failure of medical benefit to accomplish any substantial improvement in health conditions, the serious omission of funeral benefit as a result of a compromise with industrial insurance companies, the inequities of the surviving system of poor law administration, absence of any systematic provision for widows' and orphans' insurance, and so on and so forth.

As a result of this criticism, a scheme of unified social insurance is proposed. While the treatment is very concise, perhaps too concise to meet all the numerous questions of procedure and practice that might arise, the scheme itself is certainly sufficiently comprehensive. It includes no less than the following:

(1) Creation of a new system of widowhood and orphanhood insurance or pensions.

(2) Substitution of a compulsory burial insurance for the present existing voluntary so-called industrial life insurance.

(3) Elimination of medical and maternity benefit, with the substitution of a highly developed system of public medicine.

(4) Equalization and increase of benefits for sickness, accident, disablement and unemployment.

(5) Change from a uniform scale of benefits for sickness and unemployment as at present, to a scale based upon a percentage of wages (from 50% for single men to 75% for families).

(6) Elimination of approved societies in health insurance and of casualty companies in accident insurance.

(7) Creation of territorial social insurance agencies to handle all forms of insurance.

(8) Abolition of present reserve system and substitution of what the author calls the natural premium system (meaning an assessment system with an emergency reserve).

(9) Abolition of the poor law system.

(10) Partial compensation to casualty companies, industrial life insurance companies and friendly societies for losses sustained.

It is obvious how difficult it would be to develop and define so many radical changes within the 47 pages devoted to this part of the book. The lay person and social reformer will naturally be interested primarily in the evidences of the desirability of all these changes. The legislator and practical politician will question the feasibility of so radical a change at one time, while the technical insurance man and actuary will look somewhat critically at a few actuarial computations and estimates made.

It is probably safe to assume that the program as outlined represents the platform of the labor party, but since even at the time the book appeared the labor party, though in control of the government, did not represent the majority, the chances of any such a scheme going through at once were necessarily subject to

doubt which, undoubtedly, increases because of the subsequent political changes. It is certainly not in accordance with the traditions of English politics to make so essential a change at once, no matter how logical it may be. Probably more rapid progress may be expected if the four elements of the scheme; namely, extension to new fields, increase of benefits, unification of administration and substitution of state agencies for private agencies, were taken up independently, for it is not unreasonable to expect that it will be easier to create public support for each one of those things separately rather than for all things together.

As no bill, even in a raw form, is included, it is somewhat difficult to apply painstaking criticism to any one particular point. The scheme, though complete, is offered in a somewhat tentative way and only in its broad outlines. Nevertheless, many serious questions will arise in the mind of a student of social insurance, as well as the technical insurance actuary. The assumption that whatever is desirable or socially just is at the same time immediately feasible or fair economically, will necessarily be questioned by many. It will be questioned whether, from a financial point of view, either the British exchequer or British industry can at once assume the burden of so many extensions in cost. It will be questioned whether complete equalization of benefits for sickness, industrial accidents, or unemployment, is the most desirable thing. After all, the danger of malingering and the possibilities of a check-up are quite unequal in case of industrial accident and unemployment. It, therefore, may follow that this should be taken into consideration in creating some margin between normal earnings and insurance benefits.

The insurance actuary might question the rough estimates of costs, even though in justice to the author it must be admitted that they are presented in a very tentative fashion. Thus, Mr. Gordon seems to think that, in case of a wage worker with normal earnings of 45 shillings (or some \$12) per week, sickness, accident, disablement and unemployment benefits of 30 shillings per week, burial insurance of £15, and mothers' and orphans' pensions (20 shillings per month for mother and 7s 6d for orphans) can be provided for a total weekly contribution of 4s 3d (roughly \$1 per week), which amount he proceeds to distribute between the employer and employe, the municipality and the state, this dollar representing approximately 9% of the

wages. (According to the scheme suggested, no change is necessary in old age pensions, except for increase of rate of benefit, reduction of age to 65, and removal of thrift disqualifications).

Perhaps the actuary may find himself most in disagreement with the discussion of the problem of adjustment of rate to risk in chapter 9 "Insurance By Industry." In his anxiety to argue against *organization* of insurance by industry, the author proceeds to argue against adjustment of rate to industrial hazard, claiming that if the difference of risk of unemployment or sickness is taken into consideration, the argument could be carried even further until you arrive at the "*reductio ad absurdum* of a separate rate for each individual." It evidently never occurs to the author that so far from being an absurdity, the industry or occupational rate actually prevails in compensation insurance and in many health insurance funds constructed on industrial lines.

However, neither the book nor "the scheme" should be judged on a basis of isolated paragraphs or suggestions. It must be remembered that it is the work of a legislative reformer rather than of an insurance expert, and that, in the actual realization of the proposal which will, undoubtedly, take place piecemeal, if at all, legislative proposals will necessarily be subjected to scrutiny of insurance experts. However, these latter have admittedly made so bad a mess of British social insurance, notwithstanding apparent accuracy of computations, that the impatience of the legislative reformer towards the assumption of absolute accuracy by actuaries may be readily understood.

The very brief bibliography furnished by the author consists only of English works and refers only to conditions in England. Nevertheless, the scheme itself clearly demonstrates influence of some study, whether direct or indirect, of German precedents as, for instance, the preference for assessment schemes and for territorial funds. Yet, the study of the continental systems should have been a much more profound one. It would be a pity if as a result of the recent unpleasantness between nations, no matter how long it lasted, there should appear a disinclination to profit by each other's experiences. It was, after all, the failure to make a thorough study of continental systems that was very largely responsible for some of the shortcomings of the British health insurance system. The reviewer cannot help deriving a certain amount of satisfaction from the fact that in

his own study of "Standards of Health Insurance" published as long as 9 years ago, some of the inevitable results of the errors committed in the British system were foreseen.

The movement for social insurance in this country which was so active some 8 or 10 years ago, is apparently at its lowest ebb at present. Nevertheless, experiments in unemployment insurance by industry, efforts at State old age pensions, and the rapid increase of group health insurance through mutual companies, is an indication that the movement is not altogether dead. For all we know, a revival may be expected in the near future. Studies such as this by Mr. Gordan will be extremely useful for a critical attitude towards any proposal.

I. M. RUBINOW

Social Insurance Unified. Joseph L. Cohen. P. S. King & Son, Ltd., London, 1924. Pp. 157.

This is a new book by the well known English expert on Social Insurance, whose standard work on Unemployment Insurance and other books have been reviewed in the PROCEEDINGS. The title on the jacket announces the book as a discussion of a very important problem—the possible unification of various branches of social insurance already established in the United Kingdom. However, the title page, the table of contents and the preface disclose the fact that the book is really a collection of essays already published, dealing with various aspects of social insurance.

The book evidences the usual shortcomings of a collection of articles. There is a certain amount of repetition. The various topics are not handled from one definite point of view, and the brief essays published either in magazines or perhaps newspapers (the original place and date of publication is, unfortunately, not stated) deal rather superficially with some very serious problems.

The fourth essay "Social Insurance Unified" does represent a constructive proposal. The other essays may be considered as leading up to this proposal, and it would have been more logical had this essay been printed as the concluding chapter of the book, which now ends rather unexpectedly with a very brief three page discussion of the relation of social insurance to the family problem.

Taking the book in its present make-up, it contains a short

critical analysis of the existing schemes of social insurance in Great Britain, an argument for extension into the field of mothers' pensions, a criticism of the proposal of "insurance by industry" (already dealt with in a special book recently published by the same author), a general discussion of the "meaning of social insurance" with an effort to arrive at a theoretical definition, and finally a proposal for a unified social insurance system. It will thus be seen that the book deals with a great many problems of fundamental interest and importance to students of social insurance. The author's connection with the Advisory Committee on Social Insurance at the International Labor Office, with one of the large English universities and with the Labor Party, adds importance to the discussion.

Unfortunately, the hasty make-up of the book has very much influenced its contents. If it were to be taken as a pamphlet written for a specific purpose to explain the policies of the labor government when it was still in power, perhaps it would have been unfair to apply any severe scientific criteria, but as a book on a subject coming from a specialist who has devoted some ten years to the study of social insurance, the work is rather disappointing. It demonstrates very hasty writing and lack of necessary, clear, analytic thinking.

The central essay is, of course, the chapter on "Social Insurance Unified." But one rises from the reading of this chapter with a feeling of uncertainty as to what is meant by the phrase. Efforts at unifying various legislative measures dealing with correlated subjects, and passed at various times and under different conditions, are extremely desirable. Thus, we have at various times efforts to create a "labor code" out of the many enactments dealing with labor or a "children's code" or an "insurance code." Is that all the author has in mind, or is he thinking of something much more fundamental? Unification of social insurance may mean any one or more of the following things: (1) bringing together all social insurance legislation in one body of laws, (2) addition of such social insurance enactments, as are lacking as, for instance, mothers' pensions or funeral insurance in Great Britain, (3) extension of the existing laws to cover groups of wage workers not yet protected, (4) creation of one governmental department to deal with various systems of social insurance, (5) concentration of all insurance under one state insurance organi-

zation, (6) equalization of benefits for various similar hazards, (7) equal apportionment of cost in various branches of social insurance, (8) combination of different hazards under the same insurance contract.

No preference is expressed here by the reviewer for any or all of the measures enumerated. But a systematic discussion of all these features was naturally expected, and from this point of view the essay is a disappointment as it fails to differentiate clearly between the various points of view as to what a unified system of social insurance might be. It is very confusing to read the author's arguments in favor of "an amalgamation of existing schemes" unless it is definitely understood what is meant by such an amalgamation.

In an appendix there is given an outline of a proposal for the extension of social insurance by a Mr. T. T. Broad, a former member of parliament, with figures indicating an income of £336,400,000, and a cost rising from £216,400,000 in 1925 to £315,600,000 in 1975. Mr. Cohen rightly criticises this scheme because the various figures are not properly supported. He says, "the actuarial calculations involved in a problem of this kind are so complicated, the factors to be examined are so many and changing, that no estimate but that of the government actuary is likely to be accepted as having any value at all." The implied faith in the infallibility of government actuaries may appear somewhat questionable in the light of what happened to the actuarial computations both in health and unemployment insurance. But the same critical attitude could be applied, for instance, to the following statement (p. 88), "it would, for example, be a comparatively simple problem for the actuaries to work out a unified scheme, costing the same amount as our existing schemes in which the costs were shared equally between the three parties interested in the wage contract." Probably the members of the Casualty Actuarial Society will agree that the problem is not so simple at all.

Mr. Cohen in advocating additional provision for non-industrial accidents for widows and orphans and increased insurance benefits in all cases, shows how the chancellor of the exchequer can raise an additional £100,000,000. In the present situation of British finance, one may express a doubt whether the thing is as easy as all that. Included in this amount are such items as a

surplus from the unemployment insurance fund of £28,000,000 and a saving in the cost of administration of £19,000,000, all of which figures receive very little support in the way of detailed computations.

Throughout the book one notices a tendency towards uncontrolled statements, which is surprising in the work of so well-known a specialist in this field. For instance, on page 126, 37,000 mental defectives and 6500 epileptics are included in a list of "victims of communal thoughtlessness." Were this an argument for birth control, it might be of some importance, but coming as it does in support of a system of maternity insurance, the relevancy is not obvious. The statement on the same page about the "blind policy of spending millions on institutions designed to care for these defectives, to educate and cure them when similar sums devoted towards improving conditions of their birth would have prevented these evils from arising," is expressing a faith in preventive medicine or preventive obstetrics which is hardly justified. On page 115 we learn that "the rising of the standard of living of the working class will tend to have the effect of reducing the severity of the economic suffering of widows and orphans." Just how a rising standard of living will do it is not clear, unless the author meant a rising standard of earning and saving. For a rise simply in the standard of *living* is likely to make the situation of the widows and orphans worse. On page 104 we find a classification of needy mothers into four groups, and only four pages later in the same chapter a repetition of the same classification almost in the same language. On page 109 a somewhat amazing statement is found, "in Japan and Roumania when death results from an industrial accident the benefit takes the form of a pension for survivors." Surely, the author ought to know that this is true not only of such exotic countries as Japan and Roumania, but of most compensation laws in Europe or America. Probably the error is due to careless writing, rather than lack of information.

The reviewer approached with particular interest the first essay on "the meaning of social insurance." Here is the definition he finds on page 19. "Social Insurance may be defined as an agreement which is *legally enforceable*, to pay a certain sum of money, or goods and service in kind, as compensation against the loss resulting from certain given emergencies which lead to a

diminished capacity to earn, or to an increase of expenditure." Barring the somewhat involved English, the definition is obviously not a definition of social insurance at all, but of personal insurance. It would apply to every accident and health policy bought from any one of the American casualty companies. Probably what was in the mind of the author was that the system exists in virtue of law, but it is not so stated. The simple fact that the agreement is legally enforceable holds, of course, true of any private insurance contract.

Moreover, on the opposite page appears another definition of social insurance; to wit, "Social Insurance is that part of the total field of insurance in which the risks or hazards covered, result from the inability of the workman, either to make a wage contract of a kind which will enable him to maintain a satisfactory standard of living for himself and his family, or to carry through his part of the contract owing to physical incapacity."

The reviewer is not certain that he can make any sense out of this involved sentence, but so far as he does, it appears from this definition. (1) That social insurance is limited to workmen, which of course is not altogether correct. (2) It seems to eliminate anything but physical incapacity, unless in a somewhat Irish sense death may be described as physical incapacity. (3) But even granting all that, it doesn't appear clear how the risks or hazards covered, such as accident, disease, unemployment, widowhood and orphanhood or even maternity (all enumerated by the author) may be charged against the workman's inability to make a wage contract. It would seem that every one of those hazards result from entirely different situations, such as machinery, bacteria, etc.

Many similar slips may be pointed out, such as for instance, the statement on page 137 that "bonuses and extra benefits are quite common in insurance practice," a very hazy statement which would, of course, be incorrect if it is meant to convey the idea that it is common in insurance practice to grant something over and above the benefits provided in the contract. On page 125 we learn that "'puerperal septicaemia' . . . simply means infection arising from dirt." Of course, the situation isn't quite as simple as all that, unless a few bacteria introduced by sometimes necessary manipulation could properly be described as dirt. On page 29, speaking of compensation, the author expresses

an opinion that "the insurance companies generally compound their liability for a lump sum *because they have not the machinery necessary for making weekly payments.*" (our italics.) Whatever may be charged against casualty companies, this is a rather unexpected charge and I doubt whether it holds more true of England than it would of the United States.

The active interest taken in matters of social insurance in Great Britain undoubtedly requires a great deal of popular writing, which often must be hasty and somewhat ephemeral, but it is a pity that so well qualified a person as Professor Cohen, whose work on unemployment insurance is rightly considered a standard, should have been tempted into embodying these papers in a book without taking the necessary time for careful editing and revision.

I. M. RUBINOW

Workmen's Compensation Insurance. G. F. Michelbacher and T. M. Nial. McGraw-Hill Book Company, New York, 1925. Pp. xi, 503.

Those who have been asked to recommend to insurance men a comprehensive printed survey of the compensation insurance business and those who have endeavored to teach its practices to college students have long realized that there was no book in existence which was satisfactory for these purposes. Much of the printed material on the conduct of the business, as a matter of fact, is comparatively inaccessible to the average insurance man; even where it is distributed gratis he does not know where to write for it. Those who were preparing for the Society examinations were compelled to roam about collecting a little information upon one subject here and upon another subject there, with no final assurance that they had comprehensively surveyed the field. Dr. Downey's excellent book devoted but one chapter to insurance proper, and the volumes of Rhodes and Blanchard were written when the business was in its infancy.

This book is not only a great benefit in the respects outlined above but it provides a popular presentation of the nature of the business which will have its effect upon other classes of the population. A business, at the present time, should not complain of being misunderstood if it provides no satisfactory publicity. In this age of advertising every business requires collective advertising and the best advertisement is a fair repre-

sentation of the characteristics of the business told in a way the average person can understand. This volume demonstrates that such an effort does not necessarily produce the elementary or common-place. "Workmen's Compensation Insurance" might profitably be read by every person engaged in the business, for he cannot fail to find stimulation on many phases which his daily duties seldom bring to his attention.

Space will not permit a detailed description of the contents. Part I devotes 54 pages to a description of industrial injuries and their prevention. This section is noteworthy because of the interest with which the authors have succeeded in investing the subject by the use of illustrations. In the first chapter this is carried somewhat to excess. It would also seem desirable to give some additional emphasis to the cost of insurance as a factor in accident prevention.

Part II gives 131 pages to the methods of indemnifying for injuries. Other sections are so good that this suffers somewhat by comparison. It contains a brief description of European legislation, for example, but fails to point out the ideas which have been adopted and rejected here. The space devoted to early United States' legislation might well be reduced, as most of this material has a purely historical interest. The lack of uniformity in American legislation is described and nothing is said in its favor. It is very doubtful whether malingering is worth $7\frac{1}{2}$ pages. These are merely criticisms of a few points in a whole section which contains many good features.

Part III covers the insurance system in 183 pages. It starts with a good chapter on the fundamental principles of insurance (somewhat labored in spots) and gives a very impartial comparison of the characteristics of different classes of carriers. Incidentally the calm and judicial tone of the entire book is to be very highly praised. There is a very satisfactory description of the organization of a company with perhaps too much space given to the discussion of policies "not taken" which might well have been devoted to the work of agents and brokers. The subject of loss reserves I think is inadequately treated but otherwise the chapter on state regulation is good. A chapter on rate making organizations concentrates in one place a clear description of these associations and their activities which is very valuable to the student. The two chapters on rate making are perhaps the best

in the book. Here the authors very wisely decided to omit a great deal of technical material and detail which only serve to obscure the essential steps, and to content themselves with a general survey of the rate making process. One might criticize the implied assumption that the system of loading for expenses is satisfactory. The two chapters on acquisition cost and the distribution of shock losses are also excellent.

One of the best features of the book is the collection of carefully selected appendices, including fac-simile reproductions of a number of papers referred to in the text. For the person who is studying alone this serves to clothe the subject with a realism which cannot be obtained in any other way, and in classroom work it furnishes the teacher with material upon which the student can do some original thinking. The authors have displayed, in the main, excellent judgment in their choice. Surprisingly few typographical errors are present and the book is attractive in appearance.

This book is a distinct contribution to insurance literature and its value probably will not be fully realized for several years at least. The authors have admirably succeeded in attaining that rare combination of expert knowledge and clear presentation. They have also fairly accurately gauged the relative space to be devoted to the various phases of the subject. No book ever entirely disarms criticism but certainly the criticisms of this volume are almost entirely minor ones. The plain statement that it adequately accomplishes the important purposes for which it is intended eliminates the necessity for an extended enumeration of its many excellent qualities.

ROBERT RIEGEL

Automobile Insurance. Ambrose Ryder. The Spectator Company, New York, 1924. Pp. v, 235.

In the preface to his book, the author expresses the hope that it "will furnish a compact, well-arranged, and reliable work on automobile insurance, one that will serve alike the man at the home office and the man in the field." The book fulfills the author's hope admirably, and is a valuable contribution to the literature on casualty insurance. Comprehensive volumes on automobile insurance have been very scarce, and Mr. Ryder's book meets a long-felt need.

The book contains a chapter describing each of the five major lines of automobile insurance—Fire, Theft, Collision, Public Liability, and Property Damage. There are also chapters on The Insurance Contract, Classifications and Rates, Underwriting Problems, Claims and Losses, Accident Prevention, Compulsory Automobile Insurance, Sale of Automobile Insurance, and other subjects of considerable importance.

Each of the subjects treated in the book is written so as to appeal to the man with a limited knowledge of automobile insurance, rather than to the experienced automobile specialist. It has evidently been the author's intention to explain the whole subject of automobile insurance to those agents and home office juniors whose business it is to handle a number of lines of casualty and fire insurance and who do not therefore have the opportunity to concentrate on the automobile line alone.

In spite of the general excellence of the whole volume, there are a few points which might have been differently treated. The chapter on compulsory automobile insurance could well be re-written to include, for example, some of the material contained in the *Report of the Committee of Nine on Financial Responsibility for Automobile Accidents*. The author might also explain the fundamental differences between voluntary and compulsory automobile liability insurance, and the probable effect on insurance rates and claim frequency that might be expected under a compulsory system.

In his chapter on the insurance contract, the author has undertaken with considerable success to discuss the fire and casualty policies together. It might have been clearer, however, had the features common to both policies been discussed first, and then the peculiarities of each policy discussed separately.

It would have been helpful had the author seen fit to include a few general remarks on the rating of risks not specifically taken care of by the automobile manual. Most of the younger men in the company offices and the big majority of the agents are ignorant of the process whereby rates for special risks are established. In fact, few of them know just what information is required for special rating. A few generalizations on the rating of driverless car risks, automobile schools, public automobiles on the earnings basis, automobile factories, and other types of risk would be appropriate.

Any book on automobile insurance ought to be revised frequently in order to keep pace with the developments in the business. Hardly a year has passed since Mr. Ryder's book has been issued, yet there are already a number of points which need correction in the light of present practice. For example, the discount for fire extinguishers referred to on Page 97 has generally been eliminated. The compulsory automobile insurance law of New York State which formerly provided for unlimited insurance (referred to on Page 34) has been superseded by a new law calling for definite upper limits of liability. The number of fatalities in the United States, cited on Page 167 as 15,000 per annum, is now more nearly 20,000 per annum. Again, on Page 35, the author makes the statement that small degree of success has attended the efforts to have legislation passed fixing on the owner the legal liability for the operation of his car by others with his permission, express or implied. In the last year or two, such legislation has actually been passed in several states.

A few inaccuracies have crept into the work. For example, on Page 94 and again on Page 95, the expression "private car" is incorrectly used for "private livery car." On Page 110 the statement is made that the payroll basis does not require a listing of the cars covered in the policy whereas the manual rule requires that the cars be listed. On page 46 the statement is made that it is customary on occasion to extend automobile policies to include the so-called "mis-delivery of oil hazard." It is better practice not to extend the automobile policy to provide such coverage, but to cover the hazard under a Products' Liability policy.

"Automobile Insurance" is an interesting and valuable book, and might be read with profit by anyone connected with the automobile business, whether he be underwriter, claim adjuster, statistician, or agent.

H. P. STELLWAGEN

The Insurance of Foreign Credits. H. J. Loman. Prentice-Hall, Inc., New York, 1923. Pp. 142.

Dr. Loman's book describes an adventure in a new field of insurance, the assumption of the credit risk in export transactions. The account of the beginning of any form of insurance makes interesting reading, and this small volume proves no exception to the rule.

The plan of the book, as described in the preface, is:

- (1) An explanation of the financial risks attending export transactions.
- (2) The methods which have been used thus far to absorb these risks.
- (3) The possibilities for development in the future.

The financial risks to which exporters are exposed are explained in the first two chapters. Definitions of credit risks are given, together with a detailed analysis of the particular risk assumed under each specific method of financing exports.

The methods which have been used to absorb credit risks are expounded in Chapters III to IX. An historical survey of the development of Foreign Credit Insurance, both in the U. S. and abroad serves as an introduction, and typical companies and their methods are described. The succeeding chapters deal with insurance matters in the time-honored way. The types of credit insurance companies are first described. Two principal types have been organized, the regular stock company and the "reciprocal mutual." The plans and features of the two are compared with such clarity that the reader could summarize for himself the advantages and disadvantages of the two.

The classification of credit insurance policies follows, the policies being defined as to:

- (1) Unit or mass coverage.
- (2) The nature of the risk.
- (3) Limited or unlimited coverage.
- (4) Full or fractional coverage.
- (5) Duration of protection.
- (6) Types of protection.
- (7) Methods of loss adjustment.

Each in turn is discussed as it is written by the stock company or reciprocal mutual.

The question of premium, with its problems of ratemaking is one of the most interesting chapters. The basic rate is figured in a simple manner, the chief problem being to obtain reliable information upon which to base the calculations. The main factors are credit rating, terms of sale and the length of the credit. Credit rating, the chief factor is the most difficult to obtain in a reliable manner.

The settlement of losses and reinsurance are the last two topics

discussed. The reader is impressed with the time element involved in the settlement of losses. The companies promise to pay within seven days to ninety days of satisfactory proof of loss, but this means that actual settlement may not occur until the end of several years. To quote "In case of insolvency or bankruptcy, actual ascertainment of the loss may take several years, as an extension of time may be granted, and the debtor's property operated by a receiver or other designated party in the expectation that all or a portion of the debt may eventually be paid. Inasmuch as these affairs usually wind up unsatisfactorily it merely means that the insured has his payment of loss delayed until the necessary event technically occurs."

The appendix gives typical policies written by some of the largest companies.

The most impressive fact about this book is the feeling obtained that Dr. Loman believes in the need for credit insurance and in the success of its development. He summarizes the advantages to the export trade in Chapter X as follows:

- (1) Prevention of losses.
- (2) The reduction of the abuses of exporting such as bad packing, shortage, inferior merchandise.
- (3) Uniform export practices can be increased.
- (4) Wasted and duplicated effort can be reduced through the information compiled by a foreign credit insurance company.
- (5) Foreign trade financing may be facilitated by credit insurance.

This book should prove a stimulus to insurance students as it points a path for original work. No better proof of opportunities for creative work need be given than the contrast between the credit risk to which the exporter is exposed and the risk which is assumed by the insurance companies. The credit risk comprises two distinct hazards:

- (1) The risk of insolvency or bankruptcy.
- (2) The commercial risk.

To date, the insurance companies pay only losses due to insolvency and furnish full protection merely for unit shipments.

The commercial risk involves the "refusal" of the buyer to pay and is one which the exporters are anxious to have covered. As the buyer can make excuses for rejection such as claiming the

goods are inferior or late in arriving, or that some other terms of the agreement have been violated, it is difficult to predicate rates for such coverage.

Another opportunity for creative work is the solution of the problem of obtaining reliable credit information upon which to base the rates. The foreigners must be educated to overcome reluctance in supplying the necessary data.

EVELYN M. DAVIS

Modern Accounting Systems. W. B. Gordon and Jeremiah Lockwood. John Wiley & Sons, Inc., New York, 1924. Pp. x, 464.

The authors of this book have produced a work which should prove most useful to advanced students of accounting and to practicing accountants who may feel the need of an introductory knowledge of some lines with which their practice has not brought them in contact. The book sets forth in outline the peculiar accounting requirements of nine different lines of business. The list in order of presentation is Building and Loan Associations, Insurance Companies (Fire and Life), Banks, Stock Brokerage, Department Stores, Gas Companies, Railroads and Municipalities. The authors assume a general knowledge of the fundamentals of accounting. Each part of the book is introduced by a simple, non-technical outline of the nature of the business under consideration, and of the methods of organization and operation which give the peculiar character to the accounting records. This is followed by an outline of the accounting systems plentifully illustrated by typical blank forms. A set of practice problems for each part gives an opportunity for the student to test his understanding of the text.

The chapter on Fire Insurance opens with a discussion of the function of fire insurance as a business stabilizer and the general theory of insurance as a shifting of losses from the individual to the group. Some space is given to the functions and powers of insurance commissioners and the organization requirements for insurance companies and the limitations on the investment of funds.

The annual report is briefly described and copies are reproduced

of the principal statements of the blank. These are listed as follows:

- I Capital Stock
- II Income
- III Disbursements
- IV Ledger Assets
- V Liabilities
- VI Underwriting and Investment

The authors bring out very clearly the place of the Income and Disbursement statements in measuring merely the changes that have taken place during the year in the amount of the assets, and that it "does not give a true picture of the financial results of the year." "As the Income and Disbursements Statement shows merely the changes in the Net Ledger Assets, it is necessary to refer to the Underwriting and Investment Exhibit to ascertain the sources of the increases and decreases in the surplus account."

The chapter closes with an outline of the methods of procuring business and of reporting premiums and losses both on direct and on reinsurance business.

The chapter on "The Accounting System of a Fire Insurance Company" describes and illustrates with forms the Daily Report, Fire Register, Agents Monthly Abstract of Policies Written, Cancellations and Return Premiums, Account Current and Abstract of Agents' Reports, Reinsurance Register, Short Rate Table, Return Premium Register, Loss Register, Agency Loss Record, General Cash Book and Voucher or Expense Register. The entries covering the issuance of business and the payment of premiums and commissions are traced through the records indicating the interrelation of the various forms. Reinsurance is described briefly and the accounting procedure is traced. Cancellations and Return Premiums are followed through the records for both original issues and reinsurances. Pro-rata and short rate cancellations are explained. The Eighty Per Cent. Co-insurance Clause is quoted and made clear by a simple illustration. Little space is given to the general books as the assumption is made that the reader is familiar with general and subsidiary ledgers and with standard methods of accounting for expenses and cash.

The theory of unearned premium is explained by describing the premium written on an annual policy as a 100% liability at the moment of writing. This liability is reduced each month as the premium for the elapsed time is earned. The computation of unearned premiums is shown on the 50% basis for policies running from one to five years. In view of the requirement of some insurance departments that new companies value their unearned premiums on a monthly pro rata basis, it might have been well if the authors had included a description of this method.

The chapter closes with three problems involving the preparation of Income and Disbursement Statements, Asset and Liability Statements and Underwriting and Investment Exhibits from ledger balances and other information furnished. No attempt is made to go into the matter of statistical records or of loss reserves but these are matters which the general accountant would ordinarily pass over or take for granted.

The section on Life Insurance follows much the same line as that on Fire Insurance. Differences between the two forms of insurance are pointed out in relation to organization requirements, limitations on investments and reserve requirements.

The subject of Life Insurance Premiums is introduced by showing the American Experience Table of Mortality. The method of calculating natural premiums is illustrated and the conversion of these to net single premiums and level premiums is mentioned without attempting to describe the mathematical processes involved. This is an introduction to the division of the premium into the current mortality element, the reserve, which is described as an "unearned premium," and the loading. The "unearned premium liability" of a life and a fire insurance company are contrasted.

The books and forms described and illustrated are Agency Report, Policyholders Ledger (card form), Agency Cash Book, Loans on Policies Cash Book, Mortuary Register and Investment Cash Book. The interrelation of the ledgers and cash books are illustrated with a diagram, and illustrative transactions are traced through the books. The chapter closes with two problems in annual statement preparation similar to those which conclude the chapter on fire insurance accounting.

For the present purpose it is not necessary to describe the other

sections of the book, but they follow in general the same methods as those which have been outlined for the insurance section.

The explanations of technical points of insurance are simple, clear and generally adequate to the purpose for which they are intended. A study of the accounting forms with the accompanying explanations should give the reader a fair idea of a typical insurance accounting system in each of the lines treated. Very little detailed explanation is offered of the annual statement forms but by the time the student has worked through the problems presented, he should be reasonably familiar with their peculiarities. By sticking closely to essential matters and by the free use of illustrative forms the authors have managed to cover satisfactorily a great deal of ground in a relatively small space. They have made a distinct addition to accounting literature and have added a useful tool to the practicing accountant's equipment.

ROBERT S. HULL

Accounting. W. A. Paton. The Macmillan Co., New York, 1924. Pp. xvi, 894.

This book represents a valuable contribution to the literature of accounting. The aim of the book, as stated by the author, is to provide a text book for an intensive first year course in principles. It is assumed that the student in his second and third year courses will consider more fully problems of valuation and corporation accounting, as well as have further training in the construction and analysis of statements.

The student whose first acquaintance with the elements of accounting is gained from this book will never look upon double entry bookkeeping as a set of arbitrary and artificial rules. Instead, the author portrays the fundamental principles as arising naturally from the essential nature of the private business enterprise. The underlying necessity for a system of accounting which shall show not only changes in assets and liabilities but also the source of and reason for these changes is clearly demonstrated.

The method of approach to the entire subject is exemplified by the fact that the expressions "debit" and "credit" are not introduced until page 71 toward the latter part of chapter four. Throughout the text there is evident a desire to avoid the use of

stereotyped expressions and to interpret transactions in terms of fundamental significance. In the discussion of various questions a commendable breadth of view is exhibited. Diverse opinions and interpretations are often set forth but the preference of the author is usually clearly indicated. He does not lose sight of the fact that accounting deals with practical situations and that purely theoretical conceptions cannot be pressed too far.

A feature of the book is the use of the expression "equities" to represent liability and proprietorship elements. Equities are said to "represent the distribution of ownership, the equitable allocation of the total of all the assets among the individuals and interests having property rights therein." Since equities are "rights in assets," the assets and equities are always equal. The universality of this equation even under exceptional circumstances is well illustrated.

A great deal of attention has been given to income determination, a phase of accounting which the author holds to be most important, involving as it does the determination of net revenue, "the most significant single index of the degree of success which has attended operations during the past period." It is interesting to note that Single Entry Bookkeeping is dismissed with the statement that it is only one of several incomplete schemes of accounting. Insurance company accounting is mentioned only incidentally. Being a special form of accounting it is probably considered more suitable for advanced study.

The first chapter outlines the different types of business organization employed today and, while emphasizing the primary interest of the owner in accounting, draws attention to the relation which accounting bears to such diverse matters as large scale production, the business cycle, public control, income taxation, economics, law, etc. Accounting is said to consist "in that body of doctrines, rules, principles, generalizations underlying the art or profession of accounting." From the managerial point of view, it is defined as "an instrument designed to promote the rational administration of business activity."

Chapters two to six, inclusive, furnish a preliminary discussion of the general nature of assets and equities and show the use of parallel column records to be a natural development. The elemental principles of double entry bookkeeping are established, the journal and ledger are shown to constitute the essential books

of account and the necessity for accounts to represent expense and revenue is made plain. In chapter seven the use of divided column journals is explained and a considerable number of illustrations given of these special forms.

In chapter eight various types of supplementary accounts are considered. These include Income, Interest, Dividends, Taxes, Loss and Gain, Surplus, Contra Accounts, Allowance Accounts and Discounts. The following two chapters take up a large number of common transactions and show the proper journal entries therefor. A trial balance is first exhibited in chapter eleven and its functions, limitations and relationship to the balance sheet are discussed at length. In the next chapter, adjusting and closing entries are illustrated and the use of a working sheet and the preparation of a simple form of income statement and balance sheet are described.

The author returns to the consideration of the *Journal* in chapter twelve and various special forms of cash and merchandise journals are illustrated. In the chapters immediately following a more detailed analysis is made of both asset and equity accounts, the importance of underlying business papers and documents is discussed and special journal and ledger devices such as the voucher system, note and payroll registers, private and other special ledgers are fully described. Considerable attention is given to the valuation of assets and the periodic adjustments required as a result of depreciation and other causes. After a more intensive study of trading and manufacturing accounts the construction of various forms of income statements and balance sheets is again taken up and illustrations are given from a number of lines of business. In chapter twenty-four the preparation of special statements and reports such as the Statement of Affairs, Deficiency Account, Budgets and Departmental Reports are explained and the use of graphs is illustrated.

As already indicated, great importance is attached to the correct determination of income, and considerable space is given to a discussion of various aspects of this problem. Here, as throughout the book, the author spares no effort to make clear the essential features of each situation. Three to five pages each are given to a discussion of the proper ascertainment of revenue in connection with each of the following: Consignments, Approval Sales, Installment Sales, Premiums and Allowances,

Deferred Revenues, Contract Production, Production and Revenue—Extractive Lines, Exchanges, Maintenance and Improvement, Reconstruction and Rehabilitation, Demolition, and Abandonment Charges, Wasting Assets and Income, Apportioning Costs, Natural Increase and Income, Appreciation and Income.

Two chapters are devoted to partnership accounting and, in the final chapters (thirty and thirty-one), the distinctive features of corporation accounting are set forth.

This book can hardly lay claim to brevity as one of its characteristics. There are 771 pages of text. Following each chapter there appears a short list of questions bearing upon the topics covered therein. In addition to these, there is a great array of problems and exercises, comprising 111 pages, in the back of the book. These are likewise grouped to correspond with the various chapter numbers. This material together with a complete index constitute features which should prove of great value in classroom work and for reference purposes.

H. O. VAN TUYL

Auditing. George E. Bennett. The Macmillan Co., New York, 1925. Pp. ix, 377.

Professor Bennett, who occupies the Chair of Accounting in the College of Business Administration, Syracuse University, is the author of a number of books on accounting subjects. His present work was written primarily for the student in order that he might be grounded in the broad, general principles of auditing, with the idea that it would serve to lead him by easy steps to the study of more detailed works.

It is assumed that the student will have mastered the general principles of accounting and is prepared to consider the problems which occur in practical auditing. A very excellent arrangement is the incorporation of questions and problems in the appendix and the inclusion of an entire chapter entitled "The First Audit, an Illustrative Study Problem," which illustrates the working papers required, the proper method of keeping them and the orderly procedure necessary in an effective audit.

Thanks to the excellent activities of the Bureau of the Budget in Washington, the entire system of budgetary control has received an impetus; in consequence the chapter devoted to "The Business Budget" ought to be of considerable service to the

student as a means of directing his thoughts in a channel which will lead to one of the most valuable services to be rendered by the modern auditor in advising and instructing his clients.

Of course, in a book of this kind intended for the use of students, one is not surprised to find certain items of advice which cannot be carried out in actual practice. For example, in the chapter devoted to the counting of securities, the student is advised, in the case of registered bonds, to see that the last interest payment is endorsed thereon. It is difficult to understand the theory behind such advice and it is believed that the young auditor would search in vain for registered bonds so endorsed. In many hundreds of audits which have been carried on by the reviewer no such bond was ever found.

The auditing of insurance companies has probably led to a more intensive scrutiny of mortgages receivable than is usual in the auditing of a mercantile or manufacturing concern; one of the steps common in the auditing of this account—and which is considered vital to the value of this phase of the audit—is the verification of the amount of the outstanding mortgages. A mortgagor may have made partial payments and a dishonest employee of the mortgagee failed to enter such payments on the cash book or on the bond. Unless the auditor communicated with the mortgagor, therefore, to verify the amount of the unpaid principal, he would have no other course open than to accept the original amount of the mortgage. This is a step apparently which has been omitted from the instructions given in the chapter on auditing mortgages receivable.

Professor Bennett's book refers in no way to the auditing of insurance companies and its value to the insurance man and to the actuarial student is therefore limited. S. H. WOLFE

*Eye Hazards in Industrial Occupations.** Louis Resnick and Lewis H. Carris. National Committee for the Prevention of Blindness, Inc., New York, 1924. Pp. xix, 247.

This is No. 26 of the series of publications of this organization. It replaces No. 12 bearing the same title and issued in 1917. The publishing organization is a clearing house "for the collection and dissemination of information concerning eye hazards and means of their reduction and ultimate elimination."

*Distributed at cost, linen—\$1.50, fabrikoid—\$2.50.

This publication covers the nature and causes of industrial eye injuries and diseases and methods for their prevention and treatment. It is of general interest to those responsible for or interested in the safety of people engaged in industry but its particular value is to those directly engaged in safety work. To them it gives not only generalities but, in addition, very intimate details of the eye hazards incident to each of many industries and occupations and in an equally detailed manner shows the most approved method of preventing or treating such injuries. There are complete discussions of the selection of goggles or masks best suited for each kind of work, of correction of defective vision and such related subjects as industrial lighting and industrial poisons presenting hazards to the eyes. Realizing that merely developing approved physical safeguards will be ineffective unless such safeguards are actually used by those exposed to the hazards, the authors have given careful attention to the matter of educating all concerned in the need for constantly using the proper safeguards during all periods of exposure. The book is well illustrated, thus graphically bringing out the seriousness of many of the hazards discussed. The methods followed by well known industrial organizations in combatting eye hazards are given and the results of such methods are completely described.

Unfortunately, the statistical side of the problem is not treated in an entirely satisfactory manner. This is very largely due to the paucity of statistical data on this subject and is also in part due to the drawing of incorrect inferences from such data as were used. Thus, on page 16, there is shown a table indicating the number of permanent eye injuries for which compensation was paid in Pennsylvania during 1920, these being summarized according to fourteen general industrial divisions in the order of the severity of their eye hazards and the number of eyes lost in each during that year. The statement is made that the surprising element of the record is the fact that coal mining takes precedence even over the metal producing and metal working industries in severity of eye accidents, this inference not being substantiated by data indicating the exposure denominator of the various industries for the period indicated. While the table may be correct in showing that coal mining did produce more eye injuries, it does not prove that coal mining presents the most serious eye hazards in any of the industries because of the possibility of there

being more men employed in coal mining than in each of the other industries listed. The same absence of the exposure denominator characterizes other tables but, with this one exception, the book is well prepared and represents a desirable and up-to-date addition to the literature on the subject of accident prevention.

One point deserving of special comment is the supplementary reading list. This list is particularly complete and impressive and will be of considerable value to those interested in further research along more specialized lines.

L. L. HALL

The Insurance Students' Note Book. Metropolitan College, St. Albans. Pp. 490.

The organization issuing "The Insurance Students' Note Book" is an English "postal coaching" institution, the purpose of which is assisting students in preparing for various commercial examinations, including those of the Chartered Insurance Institute. This volume is a classified collection of brief notes on the subjects covered by the examinations of the Institute. It is intended to refresh the memory of students who have previously studied the subjects in detail. It would also serve admirably as a work of ready reference for any one interested in insurance as it is practiced in Great Britain.

The book is divided into five main headings covering the fire branch, life branch, accident branch (casualty), marine branch, and general topics. A glossary of insurance and commercial abbreviations and a complete index are added.

While this volume does not apply directly to American conditions, it would be a valuable addition to any insurance man's library. A comparison of American and British practices might often be illuminating and of practical importance.

RALPH H. BLANCHARD

ACTUARIAL AND STATISTICAL NOTES

STATISTICAL BASIS FOR THE PENNSYLVANIA RATING SCHEDULE 1924

The principle of rating compensation risks by a schedule of physical charges is well established, although the early schedules were involved in their method of application and unreasonably detailed. Accident statistics, collected over a period of years, indicated the relative unimportance of the structural items which were stressed in the first schedules, and indicated as well the need of changes in the premium values of other items. A revision of the Schedule was undertaken, therefore, in the light of a statistical analysis of accidents.

This statistical analysis included all fatalities and permanent injuries reported to the Pennsylvania Insurance Department for policy years 1918, 1919, 1920 and January 1921, and included as well all cases of temporary disability closed in calendar years 1921 and 1922. A sufficient number of cases was thus provided to give the characteristic causes of accidents for each nature of injury for some twenty homogeneous groups of manufacturing industries. These accidents were not, however, in due proportion by nature of injury. For example, the total experience of the Foundry group, policy years 1918, 1919, 1920 and 1921 as compiled for the annual Pennsylvania rate revision was in the proportion of 75 Deaths, five cases of Permanent Total disability, 137 of Major Permanent disability, and 5,925 of Temporary disability with \$390,000 Medical cost, whereas the cause tabulation for schedule revision contained the same Death and Permanent accidents and but 1,951 Temporary cases, since individual reports for temporary accidents were inaugurated only with 1921 policy year. Temporary cases, therefore, were weighted by 3.04 in order to raise them to the normal rate of accident occurrence. Under the Pennsylvania scale of benefits, 90% of the Medical cost is due to Temporary and Non-compensable accidents (cases under ten days duration). It was assumed that the causes of these Non-compensable accidents were identical with the causes of Temporary disability, and Temporary cases were, therefore, further weighted to include medical cost.

Using cost and duration of the Temporary cases as a key to convert the cost of Fatal and Permanent cases to days lost, a total "Days Lost" figure was obtained for all causes, as well as

for each individual cause. The tabulation of accident causes comprised 4,923,000 weighted compensable days lost (W. C. D. L.) with five principal divisions.

TABLE I

Cause of Accident All	Days Lost (W. C. D. L.) per cent 100
Machinery	44
Vehicles	8
Handling of Objects	31
Falls of Objects and Persons	16
Miscellaneous	1

Machinery, which appears as the primary cause of accident can be safeguarded and for this reason is well adapted to Schedule rating. A more detailed exhibit of machinery accidents with a few industry divisions follows in Table II.

TABLE II

Days Lost (W. C. D. L.) by Cause of Accident—Percent of All

Cause (1)	Spinning and Weaving (2)	Silk Mfg. (3)	Bridge Shops (4)	Machine Shops (5)	Brick Mfg. (6)
All Machinery	54	47	42	50	30
Working Machines	45	34	24	35	18
Boilers .....	..	2	1	1	3
Prime Movers .....	..	..	..	1	2
Transmission of Power	2	1	..	3	2
Elevators	5	10	..	2	2
Cranes and Derricks	1	..	17	8	4

Working machine accidents occur mainly at the point of operation of the machine. It must be remembered that "feed rolls" is but another name for point of operation, and accidents from kick-back or thrust of work and from flying particles from the point of operation are also point of operation accidents. Table III indicates that the importance of point of operation accidents is such that a schedule should be built principally about the points of operation of working machines. A further tabulation of machine accidents by manner of exposure (Table IV) shows that they occur during the ordinary operation of the machine or during its care or adjustment—all of which are commonly performed by a single individual. A flat amount can therefore be charged for unguarded machines rather than a percentage of rate to be charged against the whole payroll.

TABLE III
WORKING MACHINE ACCIDENTS BY PART OF MACHINE
Weighted Compensable Days Lost

Part of Machine (1)	All Manufacture (2)	Paper Goods Mfg. (3)	Wood- Working (4)	Rolling Mills (5)	Sheet Metal Goods Mfg. (6)	Machine Shops (7)
All Working Machine Acc.....	1,542,349	103,542	221,874	196,158	125,816	162,666
Point of Operation.....	884,595	84,028	159,363	79,218	101,862	66,304
Feed Rolls.....	15,527	3,683	206	2,257	615	..
Kick Back of Work.....	183,500	732	39,065	65,129	8,534	22,244
Flying Particles.....	135,955	875	14,971	21,653	4,765	34,039
Breaking of Machine.....	58,823	63	3,290	4,243	2,981	9,732
Belts and Pulleys.....	47,841	3,712	3,102	3,802	64	997
Gears.....	62,925	3,428	614	7,146	1,776	4,744
Revolving Projections.....	20,836	..	141	160	307	7,206
Other Moving Parts.....	59,857	2,426	559	3,192	1,184	6,399
Non-Mechanical Acc.....	68,686	4,296	527	9,243	3,696	11,011
Burns.....	3,799	299	38	114	32	..

TABLE IV
 WORKING MACHINE ACCIDENTS BY MANNER OF EXPOSURE
 Weighted Compensable Days Lost

Manner of Exposure (1)	All Manufacture (2)	Paper Goods Mfg. (3)	Wood- Working (4)	Rolling Mills (5)	Sheet Metal Goods Mfg. (6)	Machine Shops (7)
All Working Machine Acc.....	1,542,349	103,542	221,874	196,158	125,816	162,666
Operating Machine.....	1,231,156	81,010	207,236	145,169	122,955	136,150
Adjusting, Changing Tools.....	90,859	11,507	7,111	14,792	832	12,713
Repairing, Testing, Inspecting....	39,553	1,960	962	10,282	717	1,457
Throwing Belt.....	27,591	691	1,627	4,173	64	1,068
Oiling or Cleaning.....	104,971	6,414	2,941	11,616	845	4,590
Operating Another Machine.....	8,636	..	16	875	..	2,684
All Other.....	39,533	1,960	1,981	9,251	403	4,003

It was necessary, however, to determine whether a single flat value for a particular machine point of operation could be used wherever it was encountered or whether a different value should be used in separate industries. The inspection reports of the period used for accident analysis were themselves analyzed and the number of unguarded points of operation of each kind of machine were tabulated for the twenty manufacturing groups. Taking each machine in turn the total cost of accidents at the point of operation was divided by the number of machines which were unguarded at the point of operation. This was not an assumption of complete efficiency for safeguarding, but rather a ready means of substantiating the belief that each machine of a particular sort has a specific hazard. The results of this approximation were in substantial agreement; that is, circular saws unguarded have an annual premium value of \$36 each, jointers about \$60, stamping presses about \$30—all irrespective of the industry in which they are used.

The mechanism of machines, belts, gears and the like, was found to differ materially in accident cost in different industries. Thus 10.9% of all accident cost in Hosiery and Knit Goods Manufacture was due to moving parts of machines exclusive of the point of operation; in Woodworking this cause of accidents was 1.2% of all; in Foundries .6%; and in Machine Shops 4.1%.

The number of guarded and unguarded machines in each industry was determined from the inspection reports. With this data, after some rounding by comparison among the industries, the annual premium value of an unguarded machine was determined for each industry. An unguarded spinning frame, for example, is charged at \$.30 annually, and a metal lathe at \$.35. These charges were not developed for particular machines but rather for the machines of an industry since the machinery of each industry is in the main characteristic of the product manufactured. For example, each machine with belts, gears and moving parts unguarded in the following six industries, is charged the amounts shown for the industry.

Silk Mfg.....\$.15	Printing.....\$.40
Hosiery..... .10	Woodworking..... .20
Felt Hat Mfg.... .01	Machine Shops..... .35

It is not unusual for manufacturing establishments to have a varied mechanical equipment. Brick and glass plants have

metal and woodworking departments; silk mills, hosiery mills and hat factories occasionally manufacture their own working machines, do their own printing and make their own paper boxes. The machines in these separate departments are of course characteristic of the work done and they take the charges of the industry to which they pertain. Thus the hat factory is charged for unguarded spinning machines, hat making machines, printing machines, woodworking machines and metal working machines, at \$30, \$.01, \$40, \$.20, and \$.35 respectively. It must be remembered in comparing these amounts that accidents result not only from the mere unguarded gear or belt but also from the characteristic use of the machine which involves not only the material worked upon, the motions of the operator which expose him to hazard, the degree of skill required, but as well all the other circumstances which are connected with the occurrence of an accident.

Foundries, because of molten metal splashes have a hazard not encountered in other industries, a hazard obviated largely by the use of goggles and leggings. The aggregate compensable days lost as shown in the analysis for foundries is 605,575 days of which 117,285 is attributable to molten metal burns. Accidents costing some 75,000 days (twelve per cent of all lost days in foundries) might have been prevented by the use of leggings covering the foot and lower legs. Table V shows the distribution of these burns by part of body injured. These leggings are not completely efficient, nor can they well be made to cover the entire leg. A five per cent charge is therefore made in the schedule for foundries where cupola attendants and moulders are without standard leggings.

TABLE V
MOLTEN METAL BURNS—FOUNDRIES—BY PART OF BODY INJURED
Weighted Compensable Days Lost

Manner of Exposure and Cause of Burn from Molten Metal (1)	Aggregate Weighted Comp. Days Lost (2)	W. C. D. L. by Part of Body				
		Eye	Arm	Hand	Leg	Foot
		(3)	(4)	(5)	(6)	(7)
All Burns.....	117,285	18,648	546	4,541	7,434	68,209
Explosions.....	17,389	3,535	7	168	1,330	1,897
Run out of Mould.....	5,934	875	..	..	140	4,772
Splashes:						
"Catching" or Pouring Mould	52,776	11,907	462	2,261	1,687	35,374
From Ladles Being Carried...	28,365	1,127	77	1,762	3,934	17,836
"Tapping Off".....	4,484	875	..	91	..	1,260
All Other.....	8,337	329	..	259	343	7,070

Workmen's compensation insurance rates are commonly expressed in dollars per hundred dollars of payroll and it is therefore convenient to express the Schedule adjusted rates in the same way. The sum of the charges resulting from the application of the schedule must therefore be converted, and for this purpose use is made of an average of at least two years audited payroll. If, for example, the charges in an individual plant amount to \$750 with an average payroll of \$250,000 there will then be, for that plant, an addition of \$.30 to the minimum rate.

Minimum rates somewhat lower than the Manual rates are required for each classification because the schedule is a system of charges for defects and because too, it is necessary to reproduce the Manual rate as the average of all the risks schedule rated in any classification. The method of producing these minimum rates is a simple matter. The payroll and premium at Manual rates is determined for all schedule rated risks in each classification. The gross amount of charges from the application of the schedule to all risks in each classification is also determined. The premium for each classification, minus the charges for that classification, divided by the payroll results in the desired minimum rate. Later application of the schedule will, of course, produce an average schedule rate equal to the Manual rate for each classification although some of the individual risks will have adjusted rates below and some will have rates above the Manual rate.

Schedule Rating as a part of the rate making system for workmen's compensation insurance is intended to differentiate between establishments where accidents may reasonably be expected and those establishments in which there is a means of accident prevention. A higher premium rate is charged in the former case in order to equitably distribute the collection of premium among insured employers. Obviously the schedule rating system must adhere closely to the occurrence and cost of accidents, and can therefore be derived only from statistical studies of accidents.

The economic cost of accidents is great—much greater than statutory provisions for compensation. By calling attention to conditions which are productive of accidents, schedule rating systems accomplish a public service beyond their function of

rate making. Here as well, the schedule is effective in the degree with which it contains the chief causes of accidents with true emphasis on their importance.

SCHEDULE "Z" INSTRUCTIONS

Several important changes are noted in the instructions for the preparation of Schedule "Z"—1925, comprising the first reporting of policy year 1923 and the second reporting of policy year 1922, as issued by the National Council on Compensation Insurance.

The analysis of medical losses by kind of injury has been eliminated from the Schedule. The Schedule provides, however, that on the "Summary for all classifications" total medical be split as between (1) contract medical, (2) medical allocated to compensable cases and (3) medical allocated to non-compensable cases. No practical use had been made of the analysis of medical by kind of injury and the National Council was unable to discover any which could be made at this time. On the other hand, in order to determine the correct split of medical losses between excess and normal for purposes of experience rating, it is necessary to know for the entire business of the state, how much medical relates to compensable and how much to non-compensable cases. When a carrier is able to allocate all medical either to compensable or non-compensable, no report as to "contract medical" is necessary. This change in Schedule "Z" instructions should lessen the work of the Statistical Departments of the carriers to a marked extent.

A new requirement is that catastrophe losses be segregated. From a ratemaking standpoint, the advantages of being able to determine how much of the losses are due to catastrophes, are obvious. All catastrophes entering into the experience of any particular policy year are to be serially numbered in the order in which they are entered on the Part I blanks. Corresponding numbers will be entered on the individual reports covering the catastrophe. (For purposes of this rule, a catastrophe is any accident resulting in the death, permanent total or major permanent partial disability of two or more persons). For each such catastrophe, there is to be a supplementary report showing losses analyzed according to the Part I blank. In the past this segregation depended upon individual memory of the catastrophe, or

upon someone's noting, in the review of individual accident reports, that a number of accidents had occurred on the same risk at the same time. It is felt that this new requirement will impose no hardship whatever on the carriers and will afford a standard way of picking out catastrophe losses.

Several other changes have been made, primarily for the purpose of clarification.

It is now specifically stated in the Instructions "that the payroll reported on policies not finally audited on date of valuation should be that amount which extended at the effective rates will produce the premium actually charged against the risk and included in the Schedule "Z" report. This includes (1) the earned payroll for the audited portion of the policy period and (2) the estimated payroll for the unaudited portion of such period." In the past, there have been a number of cases where the Carrier reported the estimated annual payroll in addition to the payroll as fixed by audit for a portion of the policy year.

It is interesting to note that the changes in 1925 Schedule "Z" instructions show a tendency toward (1) simplification without an attendant sacrifice of essentials and hence (2) greater accuracy in reporting of data without additional burden on the carriers.

TABLE OF COMPARATIVE BENEFIT COSTS OF VARIOUS COMPENSATION LAWS AS OF JULY 1, 1925

The National Council on Compensation Insurance has recently prepared a very interesting exhibit showing the comparative benefit costs under the compensation laws of the various states. This comparison of benefits is based upon a uniform wage, the distribution of accidents found in the American Accident Table and a table of theoretical medical differentials. It will be noted from this exhibit which appears below that the costs of the various laws are expressed as index numbers with New York State as the basis of comparison. It should also be pointed out that the Oklahoma Compensation Law specifically excludes payments in fatal cases, but since in actual practise fatal cases are covered by joint compensation and liability policies, an experience differential for this state is included in the death column. Moreover, benefits are also shown for Missouri, although the compensation

act in that state must be submitted to a referendum before it can be put into effect.

State	(1) Death	(2) Perm. Total	(3) Major (a) Perm. Partial	(4) Minor (b) Perm. Partial	(5) Tempo- rary	(6) Medical and Hospital	(7) All Benefits
New York.....	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Alabama.....	359	294	454	593	644	821	553
California.....	496	645	667	758	958	1,000	767
Colorado.....	427	679	565	384	569	877	587
Connecticut.....	492	393	616	712	851	1,000	711
Georgia.....	385	265	514	686	720	772	585
Idaho.....	549	539	581	493	813	1,000	692
Illinois.....	486	487	629	952	842	935	735
Indiana.....	437	311	624	706	714	877	643
Iowa.....	504	328	546	566	679	784	599
Kansas.....	469	338	457	565	796	833	609
Kentucky.....	478	350	468	625	821	877	635
Louisiana.....	435	388	597	651	953	944	696
Maine.....	476	377	819	1,259	912	784	782
Maryland.....	606	321	715	770	1,123	969	803
Massachusetts....	549	276	597	469	947	772	652
Michigan.....	497	378	503	657	806	957	665
Minnesota.....	795	565	904	941	1,053	864	882
Missouri.....	644	615	701	968	1,208	1,000	878
Montana.....	594	378	500	420	636	963	623
Nebraska.....	597	711	768	791	873	1,000	800
New Hampshire....	383	232	448	294	944	735	555
New Jersey.....	475	930	689	875	933	762	748
Oklahoma.....	451	455	674	793	1,015	938	760
Rhode Island.....	352	309	667	406	810	877	613
Tennessee.....	510	292	427	541	683	772	570
Texas.....	652	367	600	758	893	883	730
Utah.....	568	753	636	547	1,005	969	760
Vermont.....	289	209	531	498	722	679	521
Virginia.....	411	270	500	618	619	926	591
Wisconsin.....	715	741	1,136	806	1,037	969	918

NOTES:

(a) Major permanent partial disability is defined as the loss or loss of use of a hand, arm, foot, leg, or eye, and the loss of hearing in both ears. Also partial loss of use is related to the benefits for total loss of use.

(b) Minor permanent partial is defined as loss or loss of use of thumb, finger, toe, etc.

Explanation:

The object of the above table is to afford a convenient comparison of the benefit scales of the several workmen's compensation laws, both for each kind of benefit and in total, taking the New York law as the basis of comparison.

EXAMPLES:

The figures shown in column (2) for Colorado and Montana are respectively, \$679 and \$378. This implies that, *on the average*, for permanent

total disability the Montana benefit is $\frac{378}{679}$ of the Colorado benefit.

The figures shown in column (7) are, for Illinois and New York \$735 and \$1,000, respectively. This indicates that, for all kinds of injury, the Illinois benefits average $\frac{735}{1000}$ of the New York benefits.

NOTE:

This comparison of cost for "all benefits" is based upon the national compensation insurance experience. Since the distribution of accidents by type of injury varies between states and, therefore, is in each case somewhat different from the national distribution, the comparison of cost for "all injuries" is correct only in a general way.

CURRENT NOTES

S. D. PINNEY, CURRENT NOTES EDITOR

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AUTOMOBILE PLATE GLASS INSURANCE

Two decades ago it was impossible to foresee the tremendous influence which automobile manufacturing was destined to exert upon other industries. The first automobiles belonged to the so-called open type and consequently plate glass was required only for windshield purposes. In 1920, however, the closed type began to meet with favor and the continued popularity of this model has created a valuable market for plate glass. In 1923 over 47,000,000 square feet of plate glass was used in motor vehicle manufacturing, which was estimated to be 53% of the total production and furnished employment indirectly to approximately 12,000 plate glass workers.

Plate glass used in connection with windows and other stationary objects is, of course, subject to breakage, but obviously the hazard is much greater when the plate glass is used upon a moving vehicle, such as an automobile. It was, therefore, apparent that the car owner, in addition to protection against damage which his car might cause to persons or property, or against loss which he might suffer through fire, theft, or collision, should also have some form of insurance to indemnify him against loss in connection with the breaking of the fragile and expensive plates of glass on his car. This resulted in the introduction of Plate Glass Insurance which provides this needed coverage.

Automobile Plate Glass insurance applies to windshields, glass wings, and glass set in frames in the body of the automobile, excluding lamps and mirrors. The insurance also covers the cost of replacement in addition to indemnity for the actual value of the broken glass. Plate Glass coverage does not apply to damage to glass covered by the policy which is caused solely by collision with another object providing such damage is already covered by other valid and collectible insurance. However, if the other

insurance is written upon a deductible basis, plate glass coverage applies to damage to the glass up to the amount of the deduction. This situation with respect to other coverage might exist where the owner of the car carries both Collision and Plate Glass insurance. For example—if the glass were the only property damaged in the collision, the plate glass coverage would not apply if full collision coverage were carried, but the Plate Glass insurance would immediately become effective in the event that the collision coverage happened to be either \$50 deductible or \$100 deductible.

The Automobile Plate Glass policy contains one very novel and interesting feature. In regular Plate Glass insurance, as in Fire insurance, a partial loss reduces the amount of insurance by the amount of such loss, and it is necessary to pay an additional premium in order to restore the original amount of insurance, following replacement of the damaged property. This, however, is not true in the case of Automobile Plate Glass Insurance which remains in full force throughout the policy period, irrespective of the number or amount of losses which may occur under the policy.

At the present time there is a universal demand for insurance rate schedules which are free from complications, and Automobile Plate Glass rating methods comply with this demand. With only three classifications, each carrying two rate bases—one for open cars and the other for closed types—and no variation between territories, the rates for this coverage are the last word in simplicity. The classifications and rates for Automobile Plate Glass coverage are as follows:

- (A) Private Passenger Cars:
 - Open Car—\$3.50
 - Closed " — 7.50
- (B) Cars used for weddings, funerals and hospital calls exclusively in addition to private use of the owner.
 - Open Car—\$12.50
 - Closed " — 25.00
- (C) Commerical Vehicles and other livery vehicles
 - Open Car—\$18.00
 - Closed " — 36.00

In order to further simplify this coverage, some companies have included the Automobile Plate Glass insurance in their

automobile contracts, while others provide this protection by means of an endorsement attached to the automobile policy. It is generally recognized that automobile plate glass insurance is a good investment, protecting the car owner against his own carelessness as well as that of others who may have occasion to use his car, inasmuch as it is estimated that 48% of the glass breakage in connection with automobiles, other than windshields, is caused by the slamming of doors. The cause of 20% of automobile plate glass breakage is unknown and the remaining 32% is the result of various other causes too numerous to mention. This form of coverage also fills the gap between full coverage Collision Insurance and the Deductible forms in so far at least as damage to the plate glass is concerned.

In view of the fact that in 1924 there were approximately 17,000,000 motor vehicles and that relatively few car owners are protected by Plate Glass Insurance, it is logical to assume that this form of coverage will show a decided increase premium-wise during the next few years. The cost of this coverage is very reasonable and the policy provisions are well defined which together with the growing desire of car owners to purchase a complete protection augur a successful future for Automobile Plate Glass Insurance.

FIDELITY AND SURETY INSURANCE

An outstanding feature of the surety business in 1924 was the heavy losses experienced by the carriers on depository bonds. This occurred particularly in the northwestern states. The continuation of these severe losses for the past several years after a long and profitable period is ample proof that surety losses recur in cycles. This suggests the necessity for building up sufficient surplus during the profitable years to meet the heavy losses which are bound to occur at regular intervals. The experience so far in 1925 points to fairly heavy recoveries on this form of bond.

Another outstanding feature of the fidelity and surety business as a whole is the gradual increase in loss ratio of late years and the narrowing margin of underwriting profit. This, of course, has resulted in the companies making strenuous efforts to reduce the expense of operation so that a larger portion of the premium may

be set aside to meet losses and create a surplus fund to take care of the future.

SUSPENSION OF AUTOMOBILE POLICIES

The principle of suspension as applied to automobile casualty policies had been advocated persistently for a number of years before it was finally adopted in a special form on October 1st, 1924, by the companies which are members of the National Bureau of Casualty and Surety Underwriters. The objections to unrestricted suspension are fundamental and need not be cited here. Of course, they may even be advanced in opposition to any special form of suspension, but it was felt that in this particular instance the unusual circumstances prevailing are such as to require special treatment.

In its present form, the suspension rule allows pro rata credit in the premiums for Public Liability, Property Damage and Collision coverages in those cases where assureds find it necessary to lay up their cars for the winter months. The argument is that the severity of the winter weather is a factor which is beyond the control of the assureds and they ought not be penalized by a short rate charge on that account. Several of the states along the northern boundary of the United States have severe winter weather, usually attended by a considerable depth of snow and ice, which makes it almost a physical impossibility to operate cars for weeks at a time. In this territory, therefore, automobile owners are practically compelled to store their cars throughout most of the winter season. To impose a short rate charge upon such persons, who have no choice but to lay up their cars, is considered unjust.

The suspension rule, recently adopted, is intended to remove this injustice only under the circumstances described. In actual practice the rule works this way: an assured residing in Maine, for example, where the winter season begins in earnest on November 15th, puts his car in storage on that date. He immediately notifies his agent who presents a suspension endorsement for signature and attachment to the policy, a duplicate being sent to the home office. The endorsement simply states that because of the severity of the winter season, the car is withdrawn from service and the coverage provided by the policy is suspended as of the date mentioned and will remain suspended until further

notice. No attempt is made to anticipate the duration of suspension and consequently no return premium is allowed at this stage. When the car is again put into service, the assured notifies the agent who reinstates the policy by means of an endorsement and at that time returns a pro rata portion of the premium for the period of suspension. Suspension may not begin before November 1st nor continue beyond May 1st of any year and reinstatement automatically occurs on May 1st unless requested before that date. No credit is allowed for suspension between these dates unless its period is of more than two months duration. If the natural expiration date of the policy falls during the period of suspension, pro rata credit is allowed only when a new policy is taken out. Extension of the policy for a period equal to the period of suspension is not allowed. Obviously these technical restrictions are intended to prevent unscrupulous persons from abusing the rule.

In the beginning it was feared that the adoption of suspension would mean serious complications in the keeping of accounting and statistical records by the companies. Up to the present such difficulties have not proved to be as serious as was expected and apparently the rule is working out nicely to the satisfaction of everyone concerned, but more especially agents and assureds.

AIRCRAFT INSURANCE

The opening of the 1925 flying season was accompanied by more inquiries concerning aircraft insurance than for several years past. These inquiries were in general due to the Federal Act to encourage commercial aviation and to authorize the Postmaster General to contract for air mail service which was approved February 2, 1925. The essential portion of this Act provides as follows:

"The Postmaster General is authorized to contract with any individual firm or corporation for the transportation of air mail by aircraft between such points as he may designate at a rate not to exceed four-fifths of the revenue derived from such air mail and to further contract for the transportation by air craft of first class mail other than air mail at a rate not to exceed four-fifths of the revenue derived from such first class mail."

The Act also provides that the rate for air mail shall be \$.10 per ounce or \$3,200 per ton.

Interest in aircraft insurance has also been aroused by the formation, recently, of the National Air Transport Company with a capitalization of \$10,000,000. This corporation was formed to operate night airplane freight express service between New York and Chicago. As a result of this activity in commercial aircraft business, numerous investigations are now under way and if they show that any substantial amount of business can be developed under the present rates, aircraft insurance in 1925 should easily break all previous records.

BANKERS BLANKET BONDS

Not quite a decade has elapsed since five prominent and progressive surety companies offered Bankers Blanket Bonds to the banking fraternity of America. This marked the beginning of a new era. It was not until Bankers Blanket Bonds came into existence that American surety companies offered to bankers and banking institutions one contract furnishing indemnity for combined dishonesty, burglary, hold-up, etc. The bankers of America very quickly appreciated the advantages to be derived from such a combined contract with the result that bonding companies in general found a very fertile field for the development of this business.

We will not attempt any technical discussion of the different standard forms of Bankers Blanket Bonds, now available, which have been designed particularly to meet the requirements and demands of the American banking fraternity. Suffice it to say that the business has grown so rapidly that it is now one of the most important branches of business transacted by bonding companies. In fact, so many Bankers Blanket Bonds have been issued that we occasionally hear that the saturation point has been reached, or, in other words, that the field has been so thoroughly combed that new business of this type is exceedingly scarce. This, however, is not a correct statement of facts inasmuch as Bankers Blanket Bonds are frequently being issued to sizeable institutions which have not previously carried this protection. Moreover, there are unquestionably many more prospects for insurance of this kind. Many banks still carry Fidelity Bonds, Burglary and Hold-up Policies, which are excellent for specific cases, but leave at least eight unprotected

illegal exits for a bank's cash and securities when accelerated by clever manipulators. The Blanket Bond closes these unprotected places and greatly reduces the chances of the bank's sustaining an uninsured loss. The unprotected points are briefly as follows:

1. Failure to add officers' or employees' names to the original bond.
2. Defaulting employees bonded for inadequate amounts.
3. Inability to fix individual responsibility for loss.
4. Abnormal, unexplainable shortage in tellers' cash.
5. Sneak thievery from tellers' cage or elsewhere.
6. Non-compliance with conditions of policy or bond.
7. Money or securities destroyed by fire or otherwise.
8. Misplacement of money or securities.

While it is true that thousands of banks have purchased Bankers Blanket Bonds, there are many thousands without this protection which should be carrying the best form of insurance available. The banker owes it to himself as well as to his stockholders, depositors and the general public to obtain the best insurance available. He is placed in a very unfortunate position if a loss occurs not covered by insurance in force which would have been collectible under a Bankers Blanket Bond. A loss which is not properly covered by a Bankers Blanket Bond subjects the banker to the criticism of the Board of Directors and injures the Bank's prestige and good will.

EARTHQUAKE INSURANCE

The recent earth tremors in various parts of the United States and Canada have tended to stimulate interest in earthquake insurance. At the present time there is very little experience available for rate making purposes and consequently the present rates for this form of coverage are based for the most part upon the judgment of individual underwriters. There is considerable talk of organizing an earthquake conference in order to combine all the experience on this line for the purpose of scientific rate-making. The rates now being used for earthquake coverage vary from four to five cents per \$100 of insurance for first-class structures with 50% co-insurance and a small additional charge for covering fire resulting from earthquakes where the damage is sufficient to void the standard fire policy. New York brokers

and company managers have given considerable attention to earthquake insurance and several lines have been written in New York City on buildings with amounts averaging from \$10,000 to \$400,000. Whereas, up to the present time the competition on this line of business has not been very keen between companies, certain rates have been quoted which are below the regular rates. It is very interesting to note that the city of New York now demands that the lessees of its municipal piers provide fire insurance and also cover the hazards of tidal waves, rising waters, earthquake, tornado, floating ice collisions, volcanic eruptions and elements, which practically amounts to an all risk coverage.

COMPENSATION AND LIABILITY RESERVES

The recent amendment of Section 86 of the New York Insurance Law is of interest in connection with the determination of loss reserves in workmen's compensation and liability insurance. By this amendment, while a reserve for claims under compensation policies issued in each of the last three years is computed by deducting losses and loss expenses actually paid from 65% of the earned premiums, it is further provided that "in any event, such reserve shall be not less than the present value at four per centum interest of the determined and the estimated unpaid compensation claims under policies written during each of such years."

In 1911, Section 86 of the Insurance Law established for the first time the method of determining these reserves on what has come to be called the Schedule "P" basis. The reserves for the last five policy years were ascertained by deducting the losses and loss expenses actually paid on policies issued in each of such years from that portion of the earned premium which was assumed to be eventually required for the payment of all losses and loss expenses. In the case of the first three years of this period, however, the reserve determined from individual estimates of unpaid compensation claims and from applying an average cost to the number of pending liability suits was used when the reserve so determined exceeded the "remainder" reserve.

From time to time this section of the law has been amended and the use of individual estimates as an alternative has been gradually extended. Originally no distinction was made between

liability and compensation premiums in computing these reserves. As compensation business increased in volume and a higher loss ratio was assumed in the rate, however, a separation between the two lines was made and different percentages to be applied to earned premiums were adopted. Whereas the percentage in 1911 was based upon the experience of each individual company (where ten years experience was available) with a fixed minimum of 50%, these percentages have now become 60% for liability and 65% for compensation.

Adequacy has always been the most important consideration in establishing legal provisions for the calculation of loss reserves for these lines. The slow development of liability claims and the proven inadequacy of the companies' loss estimates were important factors in prompting the use of earned premiums as a basis for reserves. Due to the increase in loss ratios in compensation insurance actually experienced in recent years, the reserves determined on the assumption of a 65% loss ratio have been found in the case of many companies to be inadequate. Accordingly, the tendency has been to return to the use of individual estimates as a basis for determining reserves where the 65% reserve was found to be insufficient. The probable future cost of a compensation claim can be estimated more accurately than can be done in the case of a claim or suit for recovery under the common law. This is due to the fact that a definite scale of compensation benefits is established by law whereas one can only conjecture as to the amount that may be awarded as damages by a jury.

The method of computing the legal reserve for losses under liability policies has not been changed in recent years. Reserves of from \$750 to \$1500 for each pending suit are required to be set up for all years prior to the last three, the maximum amount being applicable to suits or policies issued more than ten years prior to the date of the statement. For the last three years 60% of the earned premiums less losses and loss expenses actually paid is set up except that where the suit reserve for the third year back computed at the rate of \$750 per outstanding suit exceeds the "remainder" such suit reserve in the case of that year will be used. In general it may be said that this method has been found to produce an adequate reserve.

For several years reserves for compensation claims have been computed by New York State mutual companies on the basis of a

special schedule wherein the number of outstanding claims of various kinds are set forth and the reserve determined by applying average claim costs thereto. The experience of mutual companies has shown that the reserves thus computed approximate very closely the actual total cost of settling such claims.

THE MISSOURI COMPENSATION LAW

At the last session of the Missouri legislature a bill was passed which if not defeated by a referendum will provide that state with a workmen's compensation law. Although it was generally understood that the governor of Missouri favored the passage of a reasonable compensation act, the enactment of such an act came as a surprise inasmuch as it was opposed by certain groups including the Missouri labor leaders. In order to insure the passage of the bill several amendments were adopted but these did not materially affect the original provisions of the Act.

The law as finally passed provides for a compensation rate of $66\frac{2}{3}\%$ of the average weekly wage with a maximum and minimum of \$20 and \$6 per week respectively. All employees except those engaged in non-hazardous occupations will be included under the new act unless both the employer and employee file with the Commission a written notice of rejection. The law will be administered by a Board consisting of three members one of which must be a lawyer and the other two representatives of labor and the employers. The employees of the state, city and county and other political sub-divisions, farm laborers, domestic servants, chauffeurs and casual employees are exempted from the act.

The Missouri labor leaders who have been opposed to the Workmen's Compensation Act from the beginning are now preparing to circulate a petition calling for a statewide referendum on the question at the next general election. A minimum of 37,000 signatures must be secured to this petition before the law can be submitted to the voters in a referendum. The labor leaders of Missouri are particularly opposed to the section in the law which provides for private insurance instead of a compulsory state fund. They are also dissatisfied with the maximum compensation of \$20 per week, contending that some of the building trade workers receive between \$1.50 and \$1.75 an hour and that \$20 maximum is entirely too low for such workers.

COMPULSORY AUTOMOBILE INSURANCE

Massachusetts has become the first state in the country to adopt compulsory automobile liability insurance. Compulsory automobile insurance bills similar to the one passed in Massachusetts were introduced into the legislatures of several other states during the past year but were not enacted into law. Practically no opposition to the passing of the Massachusetts bill was experienced at its final reading but previous debate in the House on the measure was quite extensive. The bill, as finally passed, provides for the possibility of a referendum and it is, therefore, not certain that the bill will become a law. In case a referendum is taken at the next state election, and the bill is voted upon favorably, it will become effective January 1, 1928.

The bill provides only for personal liability insurance, which may be secured in any one of three ways, namely, by insurance, by a liability company's bond or by depositing securities with the proper authorities. The limits specified are \$5,000 for the death of one person or \$10,000 for one accident. A certificate showing that the applicant has complied with the law will be required by the Registrar of Motor Vehicles before he is allowed to register his car. The rates will be under the supervision of the Commissioner of Insurance who will have charge of the rate making organization. Provision has also been made for a Board of Appeals which will consist of the Commissioner of Insurance, the Registrar of Motor Vehicles and the Attorney General.

GENERAL MOTORS AND CHRYSLER VENTURES

In connection with Automobile, Fire and Theft insurance it is interesting to note the plans set forth by two large manufacturers of motor cars to provide purchasers of their cars with the above coverages at low rates. Of the two plans set forth, the more radical of the two is that proposed by the Chrysler-Palmetto plan, although the General Motors method of insuring their cars is none the less a departure from the adopted methods of insuring through regular agents in regularly licensed companies.

The Chrysler-Palmetto plan contemplates the inclusion of one year's Fire and Theft coverage with the purchase price of each car sold by them. To this end the Chrysler Company has made an arrangement with the Palmetto Fire Insurance Company of

Sumter, South Carolina whereby all cars sold by all Chrysler agencies over the entire country during any policy year are covered for Fire and Theft. In other words the Chrysler Company buys a blanket policy covering all cars sold by them during the year. The policy does not cover any one assured but all Chrysler cars purchased, there being, therefore, no possible selection of assureds. There is considerable doubt as to the legality of the plan as it is held that it violates the resident agency rulings of the various states, and makes automobile dealers in reality insurance salesmen. This point is contested by the Chrysler and Palmetto people, but the fact remains that several states have declared the plan illegal and have forbidden its operation.

The General Motors proposition verges more toward real insurance as this combine has financed a new company which will do a general automobile insurance business. This Company is called the General Exchange Corporation and has a paid in capital and surplus. However, this company, while it will eventually write all kinds of cars, is now confining itself to those turned out by the General Motors Company. It is writing these cars at rates 25% below the conference companies. It is claimed that this procedure shows discrimination and in one state where the new company has been licensed, the license has already been revoked.

BONDING AND CASUALTY INSURANCE IN BRAZIL

The following notes pertaining to Bonding and Casualty Insurance in Brazil are of interest, particularly the portion dealing with the indemnities payable to employees for various types of injuries. It is also interesting to compare the distribution of accidents reported by one of the prominent carriers as compared with the American Accident Distribution. Information contained herein was obtained from a report prepared in the office of the American Consul-General at Rio de Janeiro.

BONDING INSURANCE

There are no companies in Brazil engaged in the bonding business.

Large organizations that find it necessary to bond their employees, generally do so either in the United States or England.

CASUALTY INSURANCE

There are five companies and one mutual society in Brazil that write casualty business. While none of these can be termed as large, three are relatively important. Reliable information indicates that all of these companies are losing money because this business has not yet been properly developed.

Extent of Business

There are about 1,000,000 potentially insurable laborers in Brazil, but only approximately 350,000 were insured against accidents during the year 1924. It is estimated that about 18% of the laborers meet with accidents during a year, divided as follows:

Temporary total incapacity cases (half wages).....	13.96418%
Minor cases (medical attention only).....	4.00000
Deaths.....	0.00582
Permanent incapacity cases.....	0.03000

Only three casualty insurance companies were operating during the past year; the Cia. Seguranca Industrial, the Cia. Nacional de Seguros Ypiranga, and the Lloyd Industrial Sul Americano. The first named published statistics showing the number of cases which came to their attention during 1924, as follows:

Medical assistance cases.....	9,349
Temporary total incapacity.....	14,408
Permanent incapacity.....	370
Deaths.....	63
Pending cases.....	<u>1,636</u>
TOTAL.....	25,826

The number of employees insured by this company totaled 120,000.

The total cash movement of the companies writing casualty business amounted to 6,100 *contos** of *reis* distributed by companies according to the subjoined table:

Cia. Segurance Industrial.....	3,000 <i>contos</i>
Lloyd Industrial Sul Americano.....	1,900 <i>contos</i>
Cia. Nacional de Seguros Ypiranga.....	<u>1,200 <i>contos</i></u>
TOTAL.....	6,100 <i>contos</i>

(*NOTE: A *Conto* of *reis* is one thousand *milreis*, or 1,000,000 *reis*. One *milreis* (1,000 *reis*) is written thus 1\$000. The U. S. par value of the paper *milreis* is 32.45 cents).

Premiums

No table of rates has been prepared, rates varying according to the nature of the risk, more or less as follows:

Office employee.....	1/10%
Navigation risk.....	4%
Construction risk.....	2½%

The average charge for a commercial risk is about 2%.

Indemnity

The indemnities to be paid by casualty insurance companies is established by decree No. 3724 of January 15, 1919. The following is a translation of the principal paragraphs of this decree:

Art 13—2,400\$000 shall be considered as the maximum annual wages in the calculations for indemnity even though the salary of the victim exceeds this amount.

Art 14—By annual salary is meant 300 times the daily wages of the victim at the time of the accident.

Art 15—When a workman is employed by two or more employers at different hours, his wages shall be calculated as though he received the total remuneration from the employer in whose service he is when the accident occurs.

Art 17—The wages of apprentices shall be based on the minimum earnings of a laborer.

Art 18—In cases of death, the indemnity shall consist of three years wages, payable in a lump sum to the heirs, plus 100\$000 for funeral expenses.

Art 19—In case of total and permanent incapacity, the victim shall receive a sum equal to three years wages.

Art 20—In case of temporary total incapacity the victim shall be placed on half wages up to a maximum of one year. If the incapacity exceeds this period it shall be considered as permanent.

Art 21—In case of permanent partial incapacity the victim shall be entitled to receive from 50 to 60% of the amount that would be payable for total incapacity, taking into consideration the following facts:

- (a) Capacity for work remaining after accident.
- (b) Age
- (c) Intelligence
- (d) Education
- (e) Initiative and moral energy
- (f) Capacity for adopting another profession
- (g) Degree of safety with which he may continue exercising the same profession as at the time of the accident.

Paragraph 1—The calculations for indemnity shall be made in accordance with the table annexed hereto.

Paragraph 2—In case of the loss of more than one limb, the calculations shall be made by adding the percentages for each loss, the total, however, not to exceed 60%.

TABLE REFERRED TO ABOVE

<i>(a) Right side.</i>	<i>Percentages</i>
Total loss of limb.....	55 to 60%
Loss of forearm.....	50 to 60%
Loss of one hand.....	45 to 60%
Loss of one thumb.....	25 to 40%
Loss of index finger.....	15 to 40%
Loss of middle finger.....	10 to 25%
Loss of ring finger.....	5 to 20%
Loss of little finger.....	5 to 20%
Complete ankylosis of the shoulder.....	40 to 60%
Partial ankylosis of the shoulder, (according to degree).....	10 to 40%
Complete ankylosis of elbow.....	30 to 45%
Partial ankylosis of elbow, (according to degree).....	10 to 35%
Complete ankylosis of wrist.....	20 to 45%
Partial ankylosis of wrist (according to degree).....	5 to 30%

<u>(b) Left side.</u>	<u>Percentages</u>
Total loss of limb.....	50 to 60%
Loss of forearm.....	45 to 60%
Loss of one hand.....	40 to 60%
Loss of one thumb.....	20 to 40%
Loss of index finger.....	10 to 40%
Loss of middle finger.....	5 to 25%
Loss of ring finger.....	5 to 20%
Loss of little finger.....	5 to 20%
Complete ankylosis of the shoulder.....	30 to 60%
Partial ankylosis of the shoulder (according to degree).....	15 to 40%
Complete ankylosis of elbow.....	20 to 45%
Partial ankylosis of elbow (according to degree).....	5 to 35%
Complete ankylosis of wrist.....	10 to 45%
Partial ankylosis of wrist, (according to degree).....	5 to 20%
<u>Inferior Limbs.</u>	
Total loss of limb	55 to 60%
Loss of a leg.....	50 to 60%
Loss of a foot.....	45 to 60%
Loss of a knee cap.....	30 to 60%
Loss of the arterial arches of the foot.....	15 to 40%
Loss of the principal arterial arch of foot....	10 to 30%
Shortening of a limb (by more than 5 centimeters).....	25 to 40%
Shortening of a limb (by less than 5 centi- meters).....	10 to 30%
Complete ankylosis of the deep femoral artery.....	30 to 60%
Partial ankylosis of the deep femoral artery	10 to 40%
Complete ankylosis of the knee.....	30 to 60%
Partial ankylosis of the knee, (according to degree).....	10 to 40%
Complete ankylosis of the foot.....	25 to 60%
Partial ankylosis of the foot (according to degree).....	10 to 40%

ORGANS OF SIGHT

Loss of one eye, the other remaining perfect 50 to 60%

The principal features of the indemnities are, that in case of death three years salary is allowed the heirs of the victim, the

maximum being 7,200 *milreis*. In case of temporary incapacity, the victim is entitled to half wages up to a maximum of one year; and in case of permanent partial incapacity the victim is entitled to receive a lump sum specified for various accidents in the regulations.

INTERNATIONAL INSURANCE GUIDE

Up to the present there has been no reference book dealing with insurance in its international aspect. As insurance is world wide in its scope, it inevitably follows that a book aiming to give the vital statistics of the various companies all over the world should be an invaluable aid to all those who deal in insurance in various parts of the globe. The International Insurance Guide has been compiled with the object of filling the void which has existed so far. The information contained in the Guide is available to all as it has been embodied in ten different languages. The International Insurance Guide will contain a directory of all known insurance companies in the World with the necessary statistics copiously annotated relating thereto in most cases. There is also embodied a list of some 135 different classes of business transacted with translations thereof in ten languages. The information given is presented in such a form that it will be readily understood by any one speaking English, French, German, Spanish, Italian, Portuguese, Dutch, Danish, Swedish or Norwegian.

PERSONAL NOTES

W. W. Greene has resigned as Actuary of the National Council on Compensation Insurance to accept the position of Actuary and Comptroller of the General Re-Insurance Corporation of New York.

J. D. Maddrill, formerly Actuary of the Pennsylvania Manufacturers Association Casualty Insurance Company of Philadelphia has accepted a position as Actuary with the Hartford Accident and Indemnity Company.

T. W. Broughton, formerly Secretary of the Wisconsin Compensation Insurance Board is now connected with the Zurich General Accident & Liability Ins. Co. of Chicago, Illinois.

C. G. Smith has resigned his position as Actuary of the New York Insurance Department in order to become Manager of the New York State Insurance Fund.

Floyd E. Young is now Assistant Actuary of the Western Union Life Insurance Company of Spokane, Washington.

R. M. Pennock formerly Actuary of the New York State Insurance Fund is now Actuary of the Pennsylvania Manufacturers Association Casualty Insurance Company of Philadelphia.

S. M. Michener is now Assistant Actuary of the Columbus Mutual Life Ins. Co. of Columbus, Ohio.

CASUALTY ACTUARIAL SOCIETY

THE COUNCIL

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	SANFORD B. PERKINS	<i>Vice-President</i>
	RALPH H. BLANCHARD	<i>Vice-President</i>
	RICHARD FONDILLER	<i>Secretary-Treasurer</i>
	ROBERT J. McMANUS	<i>Editor</i>
	EDWARD R. HARDY	<i>Librarian</i>
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	OLIVE E. OUTWATER	1926
	PAUL DORWEILER	1927
	FRANK R. MULLANEY	1927
	JAMES S. ELSTON	1927

†Terms expire at the annual meeting in November, 1925.

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

ABSTRACT FROM THE MINUTES OF THE MEETING
JUNE 5, 1925.

The semi-annual (twenty-fourth regular) meeting of the Casualty Actuarial Society was held at the Hotel Belmont, New York, on Friday, June 5, 1925.

President Michelbacher called the meeting to order at 10:30 A. M. The roll was called showing the following forty Fellows and fourteen Associates present:

FELLOWS

BARBER, H. T.	GRAHAM, W. J.	MOORE, G. D.
BREIBY	GREENE	MCMANUS
BROSMITH	HAMMOND	PERKINS
BUDLONG	HOBBS	PINNEY
DORWEILER	HUNT	RIEGEL
DUNLAP	JACKSON, C. W.	ROEBER
ELSTON	KOPF	RUBINOW
FALLOW	LESLIE	SENIOR
FLANIGAN	LINDER	SMITH, C. G.
FONDILLER	LITTLE	VAN TUYL
GARRISON	MADDRILL	WHITNEY
GINSBURGH	MAYCRINCK	WOODWARD
GRAHAM, T. B.	MELTZER	YOUNG, C. N.
	MICHELbacher	

ASSOCIATES

ACKER	HALL, L. L.	SAWYER
COMSTOCK	MATTHEWS	SMITH, A. G.
CORCORAN	PIKE	STELLWAGEN
FLEMING	ROBBINS	UHL
GRAHAM, C. M.		WARREN, C. S.

President Michelbacher read his presidential address.

The minutes of the meeting held November 20, 1924 were approved as printed in the *Proceedings*.

The Secretary-Treasurer read the report of the Council and upon motion, it was adopted by the Society. FRANK A. EGER had been enrolled as an Associate without examination.

The Council recommended the following for election to Fellowship in the Society without examination under the terms of Article III of the Constitution:

WILLIAM BROSMITH, Vice President and General Counsel, Travelers Insurance Company, Hartford, Conn.

After ballot, this nominee was declared a duly elected Fellow.

The Examination Committee (Paul Dorweiler, Chairman) submitted a report of which the following is a summary:

1925 EXAMINATIONS—SUCCESSFUL CANDIDATES

The following is a list of those who passed the examinations held by the Society on May 6th and 7th, 1925:

ASSOCIATESHIP—PART I

ARNDT, R. A.	HALL, G. G. (Miss)	NICHOLSON, E. H.
BITTEL, W. H.	HALL, W. D.	OVERHOLSER, D. M.
CHEN, S. T.	HONDORP, P.	PRENNER, M. R.
CONROD, S. F.	IRWIN, J. C. W.	RAIFORD, T. E.
CRANE, H. G.	LI, S. K.	TAO, S. H.
FREDRICKSON, C. H.	LOUIS, P. H.	WELLMAN, A. C.
GRAVES, I. H. (Miss)	MENGE, W. O.	WOOLERY, J. M.

ASSOCIATESHIP—PART II

BITTEL, W. H.	LI, S. K.	SKELDING, A. Z.
CHRISTENSEN, J.	MALMUTH, J.	SOMMER, A.
CRANE, H. G.	MASTERTSON, N. E.	TAO, S. H.
DAVIS, M. E.	MENGE, W. O.	URE, A. G.
FREDRICKSON, C. H.	NICHOLSON, E. H.	WELLMAN, A. C.
HALL, W. D.	PRENNER, M. R.	WOOLERY, J. M.

FELLOWSHIP—PART I

CORCORAN, W. M.	SHEPPARD, N. E.
KELTON, W. H.	WARREN, L. A. H.
RICHTER, O. C.	

FELLOWSHIP—PART II

CORCORAN, W. M.	WARREN, L. A. H.
-----------------	------------------

In accordance with Constitutional requirements, notice of the following proposed amendments to the Constitution and By-

Laws was given. These amendments were, on motion, adopted to read as follows:

CONSTITUTION—ARTICLE V—FIRST PARAGRAPH

The President, Vice-Presidents, and the Secretary-Treasurer shall be elected by a majority ballot at the annual meeting for the term of one year and three members of the Council shall in a similar manner, be annually elected to serve for three years. The Editor and the Librarian shall be elected annually by the Council at the Council meeting preceding the annual meeting of the Society. They shall be subject to confirmation by majority ballot of the Society at the annual meeting.

BY-LAWS—ARTICLE IV—FIRST PARAGRAPH

The dues shall be ten dollars for Fellows and five dollars for Associates 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 times stated. The payment of dues will be waived in the case of Fellows or Associates who have attained the age of seventy years.

The papers printed in this Number were read or presented.

Recess was taken until 2:15 P. M.

By invitation of the Committee on Program, William Brosmith addressed the Society upon "The Value of a Knowledge of Insurance Law in Business."

Upon motion, the meeting adjourned at 4:00 P. M.

INDEX TO VOLUME XI

	PAGE
ACTUARIAL AND STATISTICAL NOTES.....	333
ACTUARIAL, STATISTICAL AND RELATED ORGANIZATIONS IN THE UNITED STATES AND ABROAD. Richard Fondiller and James S. Elston.....	115
ADDRESS OF PAST PRESIDENT, November 20, 1924. "Origin of the Casualty Actuarial Society," I. M. Rubinow..	11
ADDRESS OF PAST PRESIDENT, November 20, 1924. "Relation of Casualty Actuarial Society to Other Scientific Organizations and the Insurance World." James D. Craig..	21
ADDRESS OF PAST PRESIDENT, November 20, 1924. "Review of the Society's First Ten Years and a Glance into the Future." B. D. Flynn.....	26
ADDRESS OF THE PRESIDENT, November 20, 1924. "Casualty Problems from the Public View-Point." William Leslie.....	1
ADDRESS OF THE PRESIDENT, June 5, 1925. "A Survey of the Present Situation." G. F. Michelbacher. 191 Discussion of this paper will appear in Volume XII	
ADMINISTRATION, STATISTICS IN THE SERVICE OF INSURANCE. Edwin W. Kopf.....	102
A SURVEY OF THE PRESENT SITUATION. G. F. Michelbacher. (President's Address, June 5, 1925).....	191
Discussion of this paper will appear in Volume XII.	
AUTOMOBILE RATE MAKING. H. P. Stellwagen.....	276
Discussion of this paper will appear in Volume XII.	
BLANCHARD, RALPH H. Book Review. Workmen's Compensation. E. H. Downey....	163
BOOK REVIEWS. Ralph H. Blanchard, Editor.....	153, 293
BURGLARY, THEFT AND ROBBERY INSURANCE. G. F. Michelbacher and L. H. Carr.....	33
CARR, L. H. Burglary, Theft and Robbery Insurance (In cooperation with G. F. Michelbacher).....	33
CASUALTY ACTUARIAL SOCIETY, ORIGIN OF THE. I. M. Rubinow. (Past President's Address, November 20, 1924).....	11
CASUALTY PROBLEMS FROM THE PUBLIC VIEW-POINT. William Leslie. (President's Address, November 20, 1924).....	1

	PAGE
CRAIG, JAMES D.	
Past President's Address, November 20, 1924 "Relation of Casualty Actuarial Society to Other Scientific Organizations and the Insurance World.".....	21
CURRENT NOTES.....	170, 345
EDUCATIONAL PROGRAM IN INSURANCE LAW, THE NEEDS AND PROSPECTS OF AN. Richard Fondiller.....	99
EXPERIENCE RATING <i>In Rem</i> AND <i>In Personam</i> . Leon S. Senior....	211
Discussion of this paper will appear in Volume XII.	
FACKLER, DAVID PARKS. Obituary.....	181
FLYNN, B. D.	
Past President's Address, November 20, 1924. "Review of the Society's First Ten Years and a Glance into the Future"....	26
FONDILLER, RICHARD	
The Needs and Prospects of an Educational Program in Insurance Law.....	99
GARRISON, FRED S.	
Plate Glass Insurance.....	200
Discussion of this paper will appear in Volume XII.	
HART, WARD VAN B.	
Book Review. The Essence of Life Insurance. William Breiby	159
HOBBS, CLARENCE W.	
State Regulation of Insurance Rates.....	218
Discussion of this paper will appear in Volume XII.	
INSURANCE LAW, THE NEEDS AND PROSPECTS OF AN EDUCATIONAL PROGRAM IN. Richard Fondiller.....	99
INSURANCE RATES, STATE REGULATION OF. Clarence W. Hobbs....	218
Discussion of this paper will appear in Volume XII.	
INSURANCE WORLD, RELATION OF CASUALTY ACTUARIAL SOCIETY TO OTHER SCIENTIFIC ORGANIZATIONS AND THE. James D. Craig. (Past President's Address, November 20, 1924).....	21
KOPF, EDWIN W.	
Statistics in the Service of Insurance Administration.....	102
LESLIE, WILLIAM	
President's Address, November 20, 1924. "Casualty Problems from the Public View-Point".....	1
MICHELbacher, G. F.	
Burglary, Theft and Robbery Insurance. (In Cooperation with L. H. Carr).....	33
President's Address, June 5, 1925. "A Survey of the Present Situation".....	191
Discussion of this paper will appear in Volume XII.	

	PAGE
MINUTES OF MEETING	
November 20, 1924.....	184
June 5, 1925.....	365
MOWBRAY, A. H.	
Book Review, Elements of Business Statistics. Robert Riegel..	153
MUDGETT, BRUCE D.	
Book Review. An Introduction to the Mathematical Analysis of Statistics. C. H. Forsyth.....	155
Book Review. Handbook of Mathematical Statistics. H. L. Reitz, Editor.....	157
OBITUARY, David Parks Fackler.....	181
OFFICERS, COUNCIL AND COMMITTEES.....	182, 363
ORIGIN OF THE CASUALTY ACTUARIAL SOCIETY. I. M. Rubinow (Past President's Address, November 20, 1924).....	11
OTHER SCIENTIFIC ORGANIZATIONS AND THE INSURANCE WORLD, RELATION OF CASUALTY ACTUARIAL SOCIETY TO. James D. Craig. (Past President's Address, November 20, 1924).....	21
PALLAY, JOHN J.	
Book Review. Credit Insurance. Saul B. Ackerman and John J. Neuner.....	162
PLATE GLASS INSURANCE. Fred S. Garrison.....	200
Discussion of this paper will appear in Volume XII.	
PUBLICATIONS, REVIEWS OF. Ralph H. Blanchard, Editor....	153, 293
PUBLIC VIEW-POINT, CASUALTY PROBLEMS FROM THE. William Leslie. (President's Address, November 20, 1924).....	1
RATE MAKING, AUTOMOBILE. H. P. Stellwagen.....	276
Discussion of this paper will appear in Volume XII.	
RELATION OF CASUALTY ACTUARIAL SOCIETY TO OTHER SCIENTIFIC ORGANIZATIONS AND THE INSURANCE WORLD. James D. Craig. (Past President's Address, November 20, 1924).....	21
REVIEW OF THE SOCIETY'S FIRST TEN YEARS AND A GLANCE INTO THE FUTURE. B. D. Flynn. (Past President's Address, November 20, 1924).....	26
REVIEWS OF PUBLICATIONS. Ralph H. Blanchard, Editor....	153, 293
ROBBERY INSURANCE, BURGLARY, THEFT AND. G. F. Michelbacher and L. H. Carr.....	33
RUBINOW, I. M.	
Past President's Address, November 20, 1924. "Origin of the Casualty Actuarial Society".....	11
SENIOR, LEON S.	
Experience Rating <i>In Rem</i> and <i>In Personam</i>	211
Discussion of this paper will appear in Volume XII.	

	PAGE
SOCIETY'S FIRST TEN YEARS AND A GLANCE INTO THE FUTURE.	
Review of the. B. D. Flynn. (Past President's Address, November 20, 1924).....	26
STATE REGULATION OF INSURANCE RATES. Clarence W. Hobbs....	218
Discussion of this paper will appear in Volume XII.	
STATISTICAL NOTES, ACTUARIAL AND.....	333
STATISTICS IN THE SERVICE OF INSURANCE ADMINISTRATION. Edwin W. Kopf.....	102
STELLWAGEN, H. P.	
Automobile Rate Making.....	276
Discussion of this paper will appear in Volume XII	
THEFT AND ROBBERY INSURANCE, BURGLARY. G. F. Michelbacher and L. H. Carr.....	33
THE FUTURE, REVIEW OF THE SOCIETY'S FIRST TEN YEARS AND A GLANCE INTO. B. D. Flynn (Past President's Address, November 20, 1924).....	26
THE NEEDS AND PROSPECTS OF AN EDUCATIONAL PROGRAM IN INSURANCE LAW. Richard Fondiller.....	99
THE PRESENT SITUATION, A SURVEY OF. G. F. Michelbacher. (President's Address, June 5, 1925)	191
Discussion of this paper will appear in Volume XII.	
YOUNG, FLOYD E.	
Book Review. Practical Calculus for Home Study. Claude I. Palmer.....	161

CASUALTY ACTUARIAL SOCIETY

1925 YEAR BOOK

Officers, Council and Committees

List of Fellows and Associates

List of Ex-Presidents and Ex-Vice-Presidents

List of Deceased Members

List of Fellows by Examination and Diploma

List of Students

Constitution and By-Laws

Examination Requirements

1924 Examination Questions

(Corrected to February 1, 1925)

PRINTED FOR THE SOCIETY BY
L. W. LAWRENCE
38 LIBERTY STREET
NEW YORK CITY

No. 4

CASUALTY ACTUARIAL SOCIETY

NOVEMBER 20, 1924

THE COUNCIL

<i>*Officers:</i>	G. F. MICHELbacher	<i>President</i>
	SANFORD B. PERKINS	<i>Vice-President</i>
	RALPH H. BLANCHARD	<i>Vice-President</i>
	RICHARD FONDILLER	<i>Secretary-Treasurer</i>
	ROBERT J. McMANUS	<i>Editor</i>
	EDWARD R. HARDY	<i>Librarian</i>
<i>†Ex-Presidents:</i>	ALBERT H. MOWBRAY	1926
	HARWOOD E. RYAN	1927
	WILLIAM LESLIE	1928
<i>†Ex-Vice-Presidents:</i>	LEON S. SENIOR	1926
	EDMUND E. CAMMACK	1928
<i>†Elected:</i>	WINFIELD W. GREENE	1925
	JOHN M. LAIRD	1925
	SYDNEY D. PINNEY	1925
	JAMES D. CRAIG	1926
	THOMAS F. TARBELL	1926
	OLIVE E. OUTWATER	1926
	PAUL DORWEILER	1927
	FRANK R. MULLANEY	1927
	JAMES S. ELSTON	1927

**Terms expire at the annual meeting in November, 1925.*

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

MEMBERSHIP OF THE SOCIETY, NOVEMBER 20, 1924.

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	
	† Amerine, W. M., Assistant Secretary, Georgia Casualty Co., Brown Building, Atlanta, Ga.
May 23, 1924	Bailey, William B., Economist, Travelers Insurance Co., Hartford, Conn.
*Nov. 20, 1924	Barber, Harmon T., Travelers Insurance Co., Hartford, Conn.
	† Benjamin, Roland, Treasurer, Fidelity & Deposit Co., Baltimore, Md.
	† Black, S. Bruce, President, Liberty Mutual Insurance Co., Park Square Building, Boston, Mass.
Apr. 20, 1917	Blanchard, Ralph H., Associate Professor of Insurance, School of Business, Columbia University, New York.
May 24, 1921	Bond, Edward J., First Vice-President, Maryland Casualty Co., Baltimore, Md.
May 19, 1915	Bradshaw, Thomas, General Manager, Massey-Harris Co., Ltd., 915 King St., Toronto, Canada.
	† Breiby, William, Consulting Actuary, Fackler & Breiby, 50 Broad St., New York.
*Oct. 31, 1917	Brockway, U. Hayden, Travelers Insurance Co., Hartford, Conn.
Oct. 22, 1915	Brown, Herbert D., Chief of U. S. Efficiency Bureau, Washington, D. C.
Oct. 22, 1915	Brown, William H., Second Vice-President and Secretary, Columbian National Life Insurance Co., Boston, Mass.
	† Buck, George B., Consulting Actuary for Pension Funds, 25 Frankfort St., New York.
May 26, 1916	Bucklin, Walter S., President, National Shawmut Bank, 40 Water Street, Boston, Mass.
	† Budlong, W. A., Superintendent of Claims, Commercial Travelers Mutual Accident Association, Utica, N. Y.
Apr. 20, 1917	Burhop, W. H., Assistant Manager, Employers Mutual Liability Insurance Co., Wausau, Wis.
Feb. 19, 1915	Burns, F. Highlands, President, Maryland Casualty Co., Baltimore, Md.
	† Cammack, Edmund E., Vice-President and Actuary, Aetna Life Insurance Co., Hartford, Conn.
	† Carpenter, Raymond V., Actuary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
*Nov. 21, 1919	Carver, Harry C., Associate Professor of Mathematics and Insurance, University of Michigan, Ann Arbor, Mich.
Feb. 25, 1916	Close, Charles L., Manager, Bureau of Safety, U. S. Steel Corporation, 71 Broadway, New York.

FELLOWS.

Date Admitted	
*Nov. 15, 1918	Coates, Barrett N., Consulting Actuary, 603 Dividend Building, San Francisco, Calif.
*Nov. 17, 1922	Coates, Clarence S., Federal Mutual Liability Insurance Co., Mill Building, San Francisco, Calif.
Oct. 27, 1916	Cogswell, Edmund S., Secretary & Actuary, Commission on Pensions, State House, Boston, Mass.
†	Cole, Richard H., Vice-President, Connecticut General Life Insurance Co., Hartford, Conn.
Feb. 19, 1915	Collins, Henry, Assistant Manager, Ocean Accident & Guarantee Corporation, 114 Fifth Avenue, New York.
†	Copeland, John A., Consulting Actuary, Southeastern Trust Building, Atlanta, Ga.
†	Cowles, Walter G., Vice-President, Travelers Insurance Co., Hartford, Conn.
†	Craig, James D., Actuary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
*Nov. 20, 1924	Darkow, Angela C., Independence Indemnity Company, Third and Walnut Streets, Philadelphia, Pa.
†	Dawson, Alfred B., Miles M. Dawson & Son, 36 W. 44th St., New York.
†	Dawson, Miles M., Counsellor at Law and Consulting Actuary, 36 W. 44th St., New York.
†	De Kay, Eckford C., President, De Kay and Co., Insurance Brokers, 51 Maiden Lane, New York.
†	Dearth, Elmer K., 442 Lafayette St., East, Detroit, Mich.
May 19, 1915	Deutschberger, Samuel, Chief Examiner of Fire Companies, New York Insurance Department, 165 Broadway, New York.
*Nov. 17, 1920	Dorweiler, Paul, Aetna Life Insurance Co., Hartford, Conn.
†	Dublin, Louis I., Statistician, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
May 19, 1915	Dunlap, Earl O., Assistant Secretary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
†	Egbert, Lester D., Director, Brown, Crosby & Co., Inc., Insurance Brokers, 3 S. William St., New York.
*Nov. 17, 1922	Elston, James S., Assistant Actuary, Life Department, Travelers Insurance Co., Hartford, Connecticut.
†	Epsteen, Saul, Denver National Bank, Denver, Colo.
†	Fackler, Edward B., Consulting Actuary, Fackler & Breiby, 50 Broad St., New York.
†	Fallow, Everett S., Actuary, Accident Department, Travelers Insurance Co., Hartford, Conn.
†	Farrer, Henry, Assistant Secretary, Independence Indemnity Co., Third and Walnut Sts., Philadelphia, Pa.
Feb. 19, 1915	Fellows, C. W., President, Associated Industries Insurance Corporation, Wells Fargo Bldg., San Francisco, Calif.
Feb. 19, 1915	Flanigan, James E., Agency Manager, Bankers Life Co., 220 Broadway, New York.
†	Flynn, Benedict D., Secretary, Travelers Insurance Co., Hartford, Conn.
Feb. 19, 1915	Fondiller, Richard, Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.

FELLOWS.

Date Admitted	
†	Forbes, Charles S., Insurance Broker, 68 William St., New York.
May 26, 1916	Frankel, Lee K., Second Vice-President, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
†	Franklin, Charles H., Assistant to Vice-President, Compensation and Liability Department, Continental Casualty Co., 910 South Michigan Ave., Chicago, Ill.
Feb. 25, 1916	Froggatt, Joseph, President, Joseph Froggatt & Co., Insurance Accountants, 25 Church St., New York.
†	Furze, Harry, Treasurer, Globe Indemnity Co., Washington Park, Newark, N. J.
Feb. 19, 1915	Garrison, Fred S., Assistant Secretary, Travelers Indemnity Co., Hartford, Conn.
†	Gaty, Theodore E., Vice-President and Secretary, Fidelity & Casualty Co., 92 Liberty St., New York.
*Nov. 20, 1924	Ginsburgh, Harold J., Aetna Life Insurance Co., Hartford, Conn.
May 19, 1915	Glover, James W., Professor of Mathematics and Insurance University of Michigan, 620 Oxford Road, Ann Arbor, Mich.
†	Goodwin, Edward S., Goodwin-Beach & Co., Bankers, 720 Main St., Hartford, Conn.
†	Gould, William H., Consulting Actuary, 75 Fulton St., New York.
Oct. 22, 1915	Graham, George, Vice-President, Central States Life Insurance Co., St. Louis, Mo.
Oct. 22, 1915	Graham, Thompson B., Assistant Secretary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
†	Graham, William J., Second Vice-President, Equitable Life Assurance Society, 393 Seventh Ave., New York.
May 25, 1923	Granville, William A., Educational Director, U. S. National Life & Casualty Co., 513 Aldine Ave., Chicago, Ill.
†	Greene, Winfield W., Actuary, National Council on Compensation Insurance 151 Fifth Ave., New York.
†	Hamilton, Robert C. L., Comptroller, Hartford Accident & Indemnity Co., Hartford, Conn.
†	Hammond, H. Pierson, Assistant Actuary, Life Department, Travelers Ins. Co., Hartford, Conn.
†	Hansen, Carl M., Vice-President and General Manager, General Re-Insurance Corporation, 80 Maiden Lane, New York.
Oct. 27, 1916	Hardy, Edward R., Assistant Manager, New York Fire Insurance Exchange, 123 William St., New York.
Oct. 22, 1915	Hatch, Leonard W., Director, Bureau of Statistics and Information, State Department of Labor, 124 East 28th St., New York.
Nov. 17, 1920	Heath, Charles E., Chief Examiner of Casualty Companies, New York Insurance Department, 165 Broadway, New York.
Nov. 21, 1919	Henderson, Robert, Second Vice-President and Actuary, Equitable Life Assurance Society, 393 Seventh Ave., New York.
May 17, 1922	Heron, David, Secretary & Chief Statistician, London Guarantee & Accident Co., 20 Lincoln's Inn Fields, London, W. C. 2, England.

FELLOWS.

Date Admitted	
Oct. 22, 1915	Hess, Herbert, Herbert Hess & Co., Public Insurance Accountants, 120 Broadway, New York.
†	Hillas, Robert J., President, Fidelity & Casualty Co., 92 Liberty St., New York.
Nov. 15, 1918	Hinsdale, F. W., Secretary, Workmen's Compensation Board, Vancouver, B. C., Canada.
May 23, 1924	Hobbs, Clarence W., Special Representative of the National Convention of Insurance Commissioners, National Council on Compensation Insurance, 151 Fifth Ave., New York.
Oct. 22, 1915	Hodgkins, Lemuel G., Secretary, Massachusetts Protective Association, Worcester, Mass.
†	Hoffman, Frederick L., Consulting Statistician, Prudential Insurance Co., and Dean, Advanced Course, Babson Institute, Wellesley Hills, Mass.
Oct. 22, 1915	Holland, Charles H., President, Independence Indemnity Co., Third & Walnut Sts., Philadelphia, Pa.
†	Hughes, Charles, Auditor and Actuary, New York Insurance Department, 165 Broadway, New York.
†	Hunt, Burritt A., Assistant Secretary, Accident & Liability Department, Aetna Life Insurance Co., Hartford, Conn.
†	Hunter, Arthur, Chief Actuary, New York Life Insurance Co., 346 Broadway, New York.
Nov. 18, 1921	Hutcheson, William A., Second Vice-President and Actuary, Mutual Life Insurance Co., 32 Nassau St., New York.
Feb. 25, 1916	Jackson, Charles W., Actuary, Postal Life Insurance Co., 511 Fifth Ave., New York.
May 19, 1915	Johnson, William C., Vice-President, Massachusetts Protective Association, Worcester, Mass.
*Nov. 18, 1921	Kearney, Thomas P., Manager, State Compensation Insurance Fund, Denver, Colo.
†	King, Walter I., Secretary, Group Insurance Department, Connecticut General Life Insurance Co., Hartford, Conn.
*Nov. 21, 1919	Kirkpatrick, A. L., Casualty Information Clearing House, 208 So. La Salle St., Chicago, Ill.
†	Kopf, Edwin W., Assistant Statistician, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
Feb. 19, 1915	Laird, John M., Secretary, Connecticut General Life Insurance Co., Hartford, Conn.
Feb. 19, 1915	Landis, Abb, Consulting Actuary, 1107 Independent Life Building, Nashville, Tenn.
Nov. 17, 1922	Lawrence, A. R., Special Deputy Commissioner of Banking and Insurance, 92 Washington St., Newark, New Jersey.
†	Leal, J. R., Secretary & Actuary, Interstate Life and Accident Co., Chattanooga, Tenn.
†	Leslie, William, General Manager, National Council on Compensation Insurance, 151 Fifth Ave., New York.
*Nov. 20, 1924	Linder, Joseph, Office of Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
Nov. 18, 1921	Little, James F., Associate Actuary, Prudential Insurance Co., Newark, N. J.

FELLOWS.

Date Admitted	
†	Lockett, Daingerfield G., First Vice-President and General Manager, United States Casualty Co., 80 Maiden Lane, New York.
*Nov. 16, 1923	McClurg, D. Ralph, Secretary and Treasurer, National Equity Life Insurance Company, Little Rock, Ark.
May 23, 1919	McDougald, Alfred, Ellerslie, Beddington Gardens, Wallington Surrey, England.
*Oct. 31, 1917	McManus, Robert J., Assistant Statistician, Compensation and Liability Department, Travelers Insurance Co., Hartford, Conn.
Feb. 19, 1915	Maddrill, James D., 51 Nyack Ave., Landsdowne, Pa.
†	Magoun, William N., General Manager, Massachusetts Rating & Inspection Bureau, 80 Broad St., Boston, Mass.
May 19, 1915	Maycrink, Emma C., Examiner, New York Insurance Department, 165 Broadway, New York.
Feb. 19, 1915	Mead, Franklin B., Secretary and Actuary, Lincoln National Life Insurance Co., Fort Wayne, Ind.
Apr. 20, 1917	Meltzer, Marcus, Statistician, National Bureau of Casualty & Surety Underwriters, 120 W. 42nd St., New York.
†	Michelbacher, G. F., Secretary-Treasurer, National Bureau of Casualty & Surety Underwriters, 120 W. 42nd St., New York.
†	Miller, David W., Assistant Treasurer, S. W. Straus & Co., Investment Bonds, 565 Fifth Ave., New York.
†	Milligan, Samuel, Assistant Actuary, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
†	Mitchell, James F., First Assistant U. S. Manager, General Accident Fire and Life Assurance Corporation, 421 Walnut St., Philadelphia, Pa.
†	Moir, Henry, President, United States Life Insurance Co., 105 Fifth Ave., New York.
*Nov. 18, 1921	Montgomery, Victor, Secretary, Pacific Employers Insurance Company, 724 So. Spring St., Los Angeles, Calif.
†	Moore, George D., Assistant Secretary and Actuary, Royal Indemnity Co., 84 William St., New York.
May 19, 1915	Morris, Edward B., Actuary, Life Department, Travelers Insurance Co., Hartford, Conn.
Nov. 21, 1919	Morrison, Charles E., Vice-President and General Manager, Utilities Mutual Insurance Co., 53 Park Place, New York.
†	Morrison, James, Secretary-Treasurer, Independence Indemnity Co., Third & Walnut Sts., Philadelphia, Pa.
†	Mowbray, Albert H., Associate Professor of Insurance, University of California, Berkeley, Calif.; Consulting Actuary, 1012 Colusa Ave., Berkeley, Calif.
May 20, 1918	Mudgett, Bruce D., Professor of Economics, University of Minnesota, Minneapolis, Minn.
*Nov. 17, 1920	Mueller, Louis H., Actuary-Statistician, Associated Industries Insurance Corporation, Wells Fargo Building, San Francisco, Calif.

FELLOWS.

Date Admitted	†	
May 28, 1920	†	Mullaney, Frank R., Actuary and Assistant Secretary, American Mutual Liability Insurance Co., 245 State St., Boston, Mass.
May 28, 1920	†	Murphy, Ray D., Second Vice-President and Associate Actuary, Equitable Life Assurance Society, 393 Seventh Ave., New York.
	†	Nicholas, Lewis A., Assistant Secretary, Fidelity & Casualty Co., 92 Liberty St., New York.
	†	Olfiers, Edward, Consulting Actuary, rua Dos Andradas 64, P. O. Box 1817, Rio-de-Janeiro, Brazil.
	†	Orr, Robert K., President, Michigan Employers Casualty Co., Lansing, Mich.
	†	Otis, Stanley L., Counsellor at Law, 80 Maiden Lane, New York.
*Nov. 21, 1919	†	Outwater, Olive E., Actuary, Ladies of the Maccabees, Port Huron, Mich.
	†	Pallay, Julius J., Secretary, London Guarantee & Accident Co., Ltd., 55 Fifth Ave., New York.
May 26, 1916	†	Parker, John M., Jr., Secretary, Accident and Liability Department, Aetna Life Insurance Co., Hartford, Conn.
*Nov. 18, 1921	†	Perkins, Sanford B., Assistant Secretary, Travelers Insurance Co., Hartford, Conn.
Nov. 15, 1918	†	Perry, W. T., Assistant Manager, Ocean Accident and Guarantee Corporation, 36 Moorgate, London, E. C. 2, England.
*Nov. 17, 1922	†	Pinney, Sydney D., Actuary, Compensation and Liability Department, Travelers Insurance Co., Hartford, Conn.
	†	Remington, Charles H., Vice-President, Aetna Life Insurance Co., Hartford, Conn.
May 23, 1919	†	Richardson, Frederick, U. S. Manager, General Accident Fire and Life Assurance Corporation, 421 Walnut St., Philadelphia, Pa.
May 24, 1921	†	Riegel, Robert, Professor of Insurance, University of Pennsylvania, Philadelphia, Pa.
*Nov. 16, 1923	†	Roeber, William F., Assistant Actuary, National Council on Compensation Insurance, 151 Fifth Avenue, New York.
	†	Rubinow, I. M., Executive Director, Jewish Welfare Society, 330 South Ninth St., Philadelphia, Pa.; Consulting Statistician and Actuary.
	†	Ryan, Harwood E., Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
	†	Scheitlin, E., Assistant Treasurer, Globe Indemnity Co., Washington Park, Newark, N. J.
	†	Senior, Leon S., Manager and Secretary, Compensation Inspection Rating Board, 370 Seventh Ave., New York.
Apr. 20, 1917	†	Smith, Charles G., Actuary, New York Insurance Department 165 Broadway, New York.
Feb. 25, 1916	†	Strong, Wendell M., Associate Actuary, Mutual Life Insurance Co., 32 Nassau St., New York.
Oct. 22, 1915	†	Strong, William Richard, No. 4 "Sheringham," Cotham Road, Kew, Victoria, Australia.
	†	Sullivan, Robert J., Vice-President, Travelers Indemnity Co., Hartford, Conn.
*Nov. 17, 1920	†	Tarbell, Thomas F., Actuary, Accident and Liability Department, Aetna Life Insurance Co., Hartford, Conn.

FELLOWS

Date Admitted	
May 19, 1915	Thiselton, Herbert C., 50 Beulah Hill, Norwood, London, S. E. 19, England.
†	Thompson, John S., Assistant Actuary, Mutual Life Insurance Co., 32 Nassau St., New York.
Nov. 18, 1921	Toja, Guido, Royal Commissioner, Government Institute of Insurance, Rome, Italy.
†	Train, John L., Secretary and General Manager, Utica Mutual Insurance Co., 239 Genesee St., Utica, New York.
Nov. 17, 1922	Traversi, Antonio T., Government Insurance Commissioner and Superintendent of National Provident Fund, Box 563, Wellington, New Zealand.
*Nov. 21, 1919	Van Tuyl, Hiram O., Examiner, New York Insurance Department, 165 Broadway, New York.
*Nov. 17, 1920	Waite, Alan W., Aetna Life Insurance Co., Hartford, Conn.
May 23, 1919	Welch, Archibald A., President, Phoenix Mutual Life Insurance Co., Hartford, Conn.
†	Whitney, Albert W., Associate General Manager and Actuary, National Bureau of Casualty & Surety Underwriters, 120 West 42nd St., New York.
*Nov. 18, 1921	Wilson, W. Norbert, Statistician, State Compensation Insurance Fund, State Building, Civic Center, San Francisco, Calif.
†	Wolfe, Lee J., Consulting Actuary, 165 Broadway, New York.
†	Wolfe, S. Herbert, Consulting Actuary, 165 Broadway, New York.
May 24, 1921	Wood, Arthur B., Vice-President and Actuary, Sun Life Assurance Company, Montreal, Canada.
†	Woodward, Joseph H., Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
*Nov. 17, 1920	Young, Charles N., Safety Engineering Division, Globe Indemnity Co., Washington Park, Newark, N. J.
†	Young, William, Actuary, New York Life Insurance Co., 346 Broadway, New York.

ASSOCIATES

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

Those marked (1) or (2) have passed Part I or Part II of the Fellowship Examination.

Date Enrolled	
May 23, 1924	Acker, Milton, Manager, Compensation and Liability Department, National Bureau of Casualty and Surety Underwriters, 120 West 42nd St., New York.
*Nov. 15, 1918	Ackerman, Saul B., Assistant Professor of Insurance, New York University, 32 Waverly Place, New York.
*Nov. 15, 1918	Ankers, Robert E., Secretary and Treasurer, Continental Life Insurance Co., District National Bank Building, Washington, D. C.
(1)*Nov.16,1923	Ault, Gilbert E., Office of Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
*Nov. 17, 1922	Barter, John L., Hartford Accident & Indemnity Co., 430 California St., San Francisco, Calif.
Nov. 17, 1920	Black, Nellas C., Superintendent Statistical Division, Maryland Casualty Co., Baltimore, Md.
*Oct. 31, 1917	Bessey, John M., Nutley, N. J.
*Oct. 22, 1916	Brann, Ralph M., Superintendent Compensation Department, London & Lancashire Indemnity Company of America, 20 Trinity St., Hartford, Conn.
Nov. 15, 1918	Brooks, LeRoy, Statistician, U. S. Fidelity & Guaranty Company, Baltimore, Md.
Nov. 20, 1924	Broughton, Thomas W., Secretary and Member, Wisconsin Insurance Board, Madison, Wis.
*Nov. 15, 1918	Brunnquell, Helmuth G., Actuary, Wisconsin Insurance Department, Madison, Wis.
*Oct. 22, 1915	Buffler, Louis, Assistant to General Manager, Employers Mutual Insurance Co., 50 Church St., New York.
*Nov. 20, 1924	Bugbee, James M., Rating Engineer, The Associated Companies, 179 Allyn St., Hartford, Conn.
Mar. 31, 1920	Burt, Margaret A., Office of George B. Buck, Consulting Actuary, 25 Frankfort St., New York.
Nov. 17, 1922	Cavanaugh, Leo D., Vice-President and Actuary, Federal Life Insurance Co., 166 N. Michigan Boulevard, Chicago, Ill.
(2)*Nov.17,1920	Comstock, W. Phillips, Statistician, London Guarantee and Accident Co., Ltd., 55 Fifth Ave., New York.
*Nov. 18, 1921	Constable, William J., Assistant Secretary, National Council on Compensation Insurance, 151 Fifth Ave., New York.
Mar. 25, 1924	Corcoran, William M., Actuary, Connecticut Insurance Department, Hartford, Conn.
*Nov. 16, 1923	Davis, Evelyn M., Office of Woodward, Fondiller & Ryan, Consulting Actuaries, 75 Fulton St., New York.
May 25, 1923	Economidy, Harilaus E., Assistant Secretary and Comptroller, American Indemnity Co., Galveston, Texas.
Nov. 15, 1918	Egli, W. H., Statistician, Zurich General Accident & Liability Insurance Co., 431 Insurance Exchange, Chicago, Ill.
*Nov. 16, 1923	Fitz, L. Leroy, Assistant Actuary, Massachusetts Insurance Department, State House, Boston, Mass.

ASSOCIATES.

Date Enrolled	
*Nov. 16, 1923	Fleming, Frank A., Actuary, American Mutual Alliance, 730 5th Ave., New York.
May 23, 1919	Fletcher, Nicholas, Secretary, Workmen's Compensation Board, Winnipeg, Manitoba, Canada.
Nov. 20, 1924	Froberg, John, Superintendent, California Inspection Rating Bureau, San Francisco, Calif.
*Nov. 17, 1922	Gibson, Joseph P., Jr., Actuary, Security Mutual Casualty Co., 3236 So. Michigan Ave., Chicago, Ill.
*Nov. 16, 1923	Gildea, James F., Travelers Insurance Co., Hartford, Conn.
*Nov. 17, 1922	Graham, Chas. M., National Council on Compensation Insurance, 151 Fifth Ave., New York.
*Nov. 18, 1921	Haggard, Robert E., Superintendent Permanent Disability Rating Department Industrial Accident Commission, State Building, Civic Center, San Francisco, Calif.
*Nov. 17, 1922	Hall, Hartwell L., Life Actuarial Department, Travelers Insurance Co., Hartford, Conn.
Nov. 20, 1924	Hall, Leslie L., Secretary, Rating Division, National Council on Compensation Insurance, 151 Fifth Avenue, New York.
(*)Mar.25, 1924	Hart, Ward Van Buren, Assistant Actuary, Connecticut General Life Insurance Co., Hartford, Conn.
*Nov. 16, 1923	Haugh, Charles J., Jr., Secretary and Actuary, North Dakota Workmen's Compensation Bureau, Bismarck, N. D.
Nov. 21, 1919	Haydon, George F., General Manager, Wisconsin Compensation Rating & Inspection Bureau, 481 Broadway, Milwaukee, Wis.
Nov. 18, 1921	Hull, Robert S., Travelers Insurance Co., Hartford, Conn.
*Oct. 31, 1917	Jackson, Edward T., Statistician, General Accident Fire & Life Assurance Corporation, 421 Walnut St., Philadelphia, Pa.
(*)*Nov.18,1921	Jensen, Edward S., Great Republic Life Insurance Co., Los Angeles, Calif.
*Nov. 21, 1919	Jones, Loring D., Claim Auditor, State Insurance Fund, 432 Fourth Ave., New York.
*Nov. 20, 1924	Kelton, William H., The Travelers Insurance Company, Hartford, Conn.
*Nov. 17, 1922	Kirk, Carl L., Assistant Statistician, Zurich General Accident & Liability Insurance Co., 431 Insurance Exchange, Chicago, Ill.
(*)*Nov.16,1923	Matthews, Arthur N., Travelers Insurance Co., Hartford, Conn.
(*)*Oct.27, 1916	McClure, Laurence H., Colt's Patent Fire Arms Manufacturing Co., Hartford, Conn.
*Oct. 22, 1915	McGuire, Vincent G., Assistant Actuary-Auditor, Pension Division, Department of Finance, Municipal Building, New York.
*Nov. 17, 1922	McIver, Rosswell A., Actuary, U. S. National Life & Casualty Co., 29 South LaSalle St., Chicago, Ill.
(*)*Nov.17,1922	Michener, Samuel M., 22 South Portland Ave., Brooklyn, N. Y.
Nov. 17, 1922	Montgomery, John C., Assistant Treasurer, Utilities Mutual Insurance Co., 53 Park Place, New York.

ASSOCIATES.

Date Enrolled	
May 25, 1923	Moore, Joseph P., Vice-President, North American Accident Insurance Company, 275 Craig St. W., Montreal, Canada.
(?)*Nov.21,1919	Mothersill, Roland V., Secretary & Actuary, Compensation Insurance Board, State Capitol, St. Paul, Minn.
(!)*Oct.27,1916	Newell, William, Superintendent Compensation & Liability Department, Sun Indemnity Co., 55 Fifth Ave., New York.
May 23, 1919	Otto, Walter E., Treasurer, Michigan Mutual Liability Co., Park Avenue Building, Detroit, Mich.
Nov. 20, 1924	Pennock, Richard M., Actuary, Pennsylvania Manufacturers Association Casualty Insurance Co., Finance Building, Philadelphia, Pa.
*Nov. 17, 1920	Pike, Morris, Examiner, New York Insurance Department, 165 Broadway, New York.
(!)*Nov.17,1922	Poorman, William F., Actuary, Farmers National Life Insurance Co., 3401 Michigan Ave., Chicago, Ill.
(!)Nov.17,1922	Powell, John M., Actuary, Columbian National Life Insurance Co., 77 Franklin St., Boston, Mass.
*Nov. 15, 1918	Raywid, Joseph, Vice-President, Underwriters Statistical Bureau, 50 John St., New York.
*Nov. 20, 1924	Richter, Otto C., American Telephone & Telegraph Company, 195 Broadway, New York.
*Nov. 21, 1919	Robbins, Rainard B., Assistant Actuary, New York Insurance Department, 165 Broadway, New York.
Nov. 16, 1923	Sawyer, Arthur, Actuary, London Guarantee & Accident Co., 55 Fifth Ave., New York.
*Nov. 20, 1924	Shaw, Victoria E., Michigan Mutual Liability Company, Park Avenue Building, Detroit, Mich.
*Nov. 18, 1921	Shepard, Elmer I., Assistant Professor of Mathematics, Williams College, Williamstown, Mass.
*Nov. 20, 1924	Sheppard, Norris E., Lecturer in Mathematics, University of Toronto, Toronto, Canada.
Nov. 15, 1918	Sibley, John L., Statistician, United States Casualty Co., 80 Maiden Lane, New York.
*Nov. 18, 1921	Smith, Arthur G., Actuary & Auditor, Compensation Inspection Rating Board, 370 Seventh Ave., New York.
*Nov. 15, 1918	Spencer, Harold S., Aetna Life Insurance Co., Hartford, Conn.
Nov. 20, 1924	Stellwagen, Herbert P., Manager, Automobile Department, National Bureau of Casualty and Surety Underwriters, 120 West 42nd St., New York.
*Nov. 16, 1923	Stoke, Kendrick, National Council on Compensation Insurance, 151 Fifth Ave., New York.
Nov. 15, 1918	Sullivan, Oscar M., Director of Re-education, State Department of Education, St. Paul, Minn.
Mar. 23, 1921	Thompson, Arthur E., Chief Statistician, Globe Indemnity Co., Washington Park, Newark, N. J.
(!)*Nov.21,1919	Trench, Frederick H., Manager, Underwriting Department, Utica Mutual Insurance Co., 239 Genesee St., Utica, New York.
*Nov. 20, 1924	Uhl, M. E., National Bureau of Casualty & Surety Underwriters, 120 West 42nd St., New York.
May 25, 1923	Upshur, Arthur B., Actuary, Home Beneficial Association, 900 E. Broad St., Richmond, Va.

ASSOCIATES.

Date Enrolled	
May 25, 1923	Vinter, Joseph M., Standard Accident Insurance Co., 640 Temple Ave., Detroit, Mich.
*Nov. 21, 1919	Voogt, Walter G., Comptroller, State Compensation Insurance Fund, State Building, Civic Center, San Francisco, Calif.
(4)*Oct.27,1916	Waite, Harry V., Statistician, Compensation & Liability Department, Travelers Insurance Co., Hartford, Conn.
May 23, 1919	Warren, Charles S., Chief Statistician, Ocean Accident & Guarantee Corporation, 114 Fifth Ave., New York.
*Nov. 20, 1924	Warren, Lloyd A. H., Assistant Professor of Mathematics, University of Manitoba, Winnipeg, Canada.
(4)*Nov.18,1921	Waters, Leland L., Actuary, National Accident Insurance Co., Lincoln, Neb.
Nov. 17, 1920	Watson, James J., Assistant General Manager, Texas Employers' Insurance Association, Dallas, Texas.
*Nov. 18, 1921	Welch, Eugene R., Secretary, Associated Industries Insurance Corporation, Wells Fargo Bldg., San Francisco, Calif.
*Nov. 16, 1923	Wetherald, Dorothy, 4631 Sansom St., Philadelphia, Pa.
Mar. 23, 1921	Wheeler, Roy A., Vice-President and Actuary, Liberty Mutual Insurance Company, Park Square Building, Boston, Mass.
Nov. 15, 1918	Wilkinson, Albert E., Statistician, Standard Accident Insurance Co., Detroit, Mich.
Sept. 17, 1919	Williams, John F., Actuary, Division of Insurance, State Department of Trade, Springfield, Ill.
*Oct. 22, 1915	Williamson, William R., Assistant Actuary, Life Department, Travelers Insurance Co., Hartford, Conn.
*Oct. 22, 1915	Wood, Donald M., Childs, Young & Wood, General Agents, Independence Indemnity Company, 175 W. Jackson Blvd., Chicago, Ill.
*Oct. 22, 1915	Woodman, Charles E., Comptroller, Ocean Accident & Guarantee Corporation, 114 Fifth Ave., New York.
*Nov. 17, 1922	Young, Floyd E., Instructor in Mathematics, Oregon Agricultural College, 2728 Van Buren St., Corvallis, Oregon.

SCHEDULE OF MEMBERSHIP, NOVEMBER 20, 1924.

	Fellows	Associates	Total
Membership, Nov. 16, 1923.....	155	79	234
Deductions:			
By resignation.....	—	—	—
By withdrawal.....	1	3	4
By death.....	2	—	2
Additions:	152	76	228
By election, May 23, 1924.....	2	3	5
By election, Nov. 20, 1924.....	—	5	5
By 1924 examinations.....	4	7	11
By reinstatement.....	1	—	1
	159	91	250
Transfers from Associate to Fellow.....	—	4	4
Membership, November 20, 1924.....	159	87	246

EX-PRESIDENTS AND EX-VICE-PRESIDENTS

EX-PRESIDENTS

	Term
I. M. RUBINOW.....	1914-1916
JAMES D. CRAIG.....	1916-1918
JOSEPH H. WOODWARD.....	1918-1919
BENEDICT D. FLYNN.....	1919-1920
ALBERT H. MOWBRAY.....	1920-1922
HARWOOD E. RYAN.....	1922-1923
WILLIAM LESLIE.....	1923-1924

EX-VICE-PRESIDENTS

	Term
GEORGE D. MOORE.....	1918-1920
LEON S. SENIOR.....	1920-1922
G. F. MICHELbacher.....	1922-1924
EDMUND E. CAMMACK	1922-1924

DECEASED MEMBERS

All of the following were Fellows with the exception of those marked * who were Associates.

Date of Death	
Feb. 10, 1920	*Baxter, Don. A., Deputy Insurance Commissioner, Michigan Insurance Department, Lansing, Michigan.
Feb. 4, 1920	Case, Gordon, Office of F. J. Haight, Consulting Actuary, Indianapolis, Ind.
July 23, 1921	Conway, Charles T., Vice-President, Liberty Mutual Insurance Co., Boston, Mass.
Jan. 20, 1922	Craig, James McIntosh, Actuary, Metropolitan Life Insurance Co., New York.
Sept. 2, 1921	Crum, Frederick S., Assistant Statistician, Prudential Insurance Co., Newark, N. J.
July 9, 1922	Downey, Ezekiel Hinton, Compensation Actuary, Pennsylvania Insurance Department, Harrisburg, Pa.
Oct. 30, 1924	Fackler, David Parks, Consulting Actuary, New York.
Mar. 10, 1924	Hookstadt, Carl, Expert, U. S. Bureau of Labor Statistics, Washington, D. C.
Oct. 15, 1918	Kime, Virgil Morrison, Actuary, Casualty Departments, Travelers Insurance Co., Hartford, Conn.
Dec. 20, 1920	Lubin, Harry, Assistant Actuary, State Industrial Commission, New York.
Aug. 20, 1915	Montgomery, William J., State Actuary, Boston, Mass.
July 24, 1915	Phelps, Edward B., Editor, The American Underwriter, New York.
July 30, 1921	Reiter, Charles Grant, Assistant Actuary, Metropolitan Life Insurance Co., New York.
Feb. 26, 1921	Saxton, Arthur F., Chief Examiner of Casualty Companies, New York Insurance Department, New York.
May 9, 1920	Stone, John T., President, Maryland Casualty Co., Baltimore, Md.

DIPLOMAS CONFERRED UPON FELLOWS BY EXAMINATION

The Council of the Society authorized the granting of diplomas to Fellows by examination, which is recorded in the minutes of the meeting of the Society held November 17, 1922, in the *Proceedings*, Volume IX, page 167. The following list of 25 Fellows by examination comprises all those who have been so admitted from the organization of the Society down to and including the 1924 examinations. Every Fellow admitted by examination remains a member of the Society to this date.

Date Admitted	Name
Nov. 20, 1924.....	BARBER, HARMON T.
Oct. 31, 1917.....	BROCKWAY, U. HAYDEN
Nov. 21, 1919.....	CARVER, HARRY C.
Nov. 15, 1918.....	COATES, BARRETT N.
Nov. 17, 1922.....	COATES, CLARENCE S.
Nov. 20, 1924.....	DARKOW, ANGELA C.
Nov. 17, 1920.....	DORWEILER, PAUL
Nov. 17, 1922.....	ELSTON, JAMES S.
Nov. 20, 1924.....	GINSBURGH, HAROLD J.
Nov. 18, 1921.....	KEARNEY, THOMAS P.
Nov. 21, 1919.....	KIRKPATRICK, A. L.
Nov. 20, 1924.....	LINDER, JOSEPH
Nov. 16, 1923.....	McCLURG, D. RALPH
Oct. 31, 1917.....	McMANUS, ROBERT J.
Nov. 18, 1921.....	MONTGOMERY, VICTOR
Nov. 17, 1920.....	MUELLER, LOUIS H.
Nov. 21, 1919.....	OUTWATER, OLIVE E.
Nov. 18, 1921.....	PERKINS, SANFORD B.
Nov. 17, 1922.....	PINNEY, SYDNEY D.
Nov. 16, 1923.....	ROEBER, WILLIAM F.
Nov. 17, 1920.....	TARBELL, THOMAS F.
Nov. 21, 1919.....	VAN TUYL, HIRAM O.
Nov. 17, 1920.....	WAITE, ALAN W.
Nov. 18, 1921.....	WILSON, W. NORBERT
Nov. 17, 1920.....	YOUNG, CHARLES N.

CASUALTY · ACTUARIAL · SOCIETY

· ORGANIZED · 1914 ·

DEVOTED TO THE PROMOTION OF ACTUARIAL AND STATISTICAL SCIENCE
AS APPLIED TO THE PROBLEMS OF CASUALTY AND SOCIAL INSURANCE

· THIS · CERTIFIES ·
· THAT ·

HAVING · PASSED · THE · EXAMINATIONS · OF · THE · SOCIETY · AND
HAVING · SATISFIED · ALL · OTHER · REQUIREMENTS · PRESCRIBED · BY
THE · CONSTITUTION · WAS · ON · THE _____ DAY · OF
_____ NINETEEN · HUNDRED · AND _____
ADMITTED · AS · A

FELLOW · OF · THE · CASUALTY · ACTUARIAL · SOCIETY

BY · AUTHORITY · OF · THE · COUNCIL · OF · THE · SOCIETY

PRESIDENT

SECRETARY

NEW YORK _____ 19 _____

DIPLOMA GRANTED TO FELLOWS BY EXAMINATION

STUDENTS

The following candidates for the grade of Associate have passed one of the two Parts of the examination, during the last three years:

Part 1 only.

- BATEMAN, A. E., Liberty Mutual Insurance Company, Park Square Building, Boston, Mass.
- CAMERON, JOHN L., Travelers Insurance Company, Hartford, Conn.
- DAVIS, M. E., Metropolitan Life Insurance Co., 1 Madison Ave., New York.
- HALL, LAWRENCE L., 124 Grant Ave., Jersey City, N. J.
- MALMUTH, J., New York Insurance Department, 165 Broadway, New York.
- MILLER, H. C., Assistant Comptroller, State Compensation Insurance Fund, State Bldg., San Francisco, Calif.
- NEWHALL, K., 55 Inlay Street, Hartford, Conn.
- ROBINSON, E. E., National Bureau of Casualty and Surety Underwriters, 120 West 42nd Street, New York
- ROCKWELL, C. P., Houston, Texas.
- SKELDING, A. Z., National Council on Compensation Insurance, 151 Fifth Ave., New York.
- SKILLINGS, E. S., Utilities Mutual Insurance Co., 53 Park Place, New York.

Part 2 only.

- CARTER, R. B., (Miss) State Compensation Insurance Fund, State Building, San Francisco, Calif.
- SCHLIER, C. L., Travelers Insurance Co., Hartford, Conn.

CONSTITUTION

(As Amended November 17, 1922.)

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.

CONSTITUTION.

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

The officers 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 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 OCTOBER 27, 1916.)

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,

BY-LAWS.

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 and five dollars for Associates 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 times stated.

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.—*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
RULES REGARDING EXAMINATIONS FOR
ADMISSION TO THE SOCIETY

(AS AMENDED NOVEMBER 16, 1923.)

The Council adopted the following rules providing for the examination system of the Society:

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

2. Application for admission to examination should be made on the Society's blank form, which may be obtained from the Secretary-Treasurer. No applications will be considered unless received before the first day of March preceding the dates of examination.

3. A fee of \$5.00 will be charged for admission to examination. This fee is the same whether the candidate sits for one or two parts and is payable for each year in which the candidate presents himself. Examination fees are payable to the Secretary-Treasurer and must be in his hands before the first day of March preceding the dates of examination.

4. The examination for Associateship consists of two parts. Subject to the provisions of Rule 5 following, no candidate will be permitted to present himself for Part II unless he has previously passed in Part I or takes Parts I and II in the same year. If a candidate takes both parts in the same year and passes in one and fails in the other, he will be given credit for the part passed.

5. In the case of applicants not less than thirty years of age who have had not less than five years' experience in actuarial or statistical work in insurance offices, the Council may, upon receipt of satisfactory evidence of general education, waive the passing of Part I of the Associateship Examination. Such applicants may thereupon become Associates by passing Part II thereof.

6. Admission to Fellowship examinations is granted only to those who are Associates of the Society. The examination for Fellowship is divided into two parts. No candidate will be permitted to present himself for Part II unless he has previously passed in Part I or takes Parts I and II in the same year. If a candidate takes both parts in the same year and passes in one and fails in the other, he will be given credit for the part passed.

EXAMINATION REQUIREMENTS.

7. As an alternative to the passing of Part II of the Fellowship examination, a candidate may elect to present an original thesis on an approved subject relating to casualty or social insurance. Candidates electing this alternative should communicate with the Secretary-Treasurer as to the approval of the subject chosen. All theses must be in the hands of the Secretary-Treasurer before the first Thursday in May of the year in which they are to be considered. Where Part I of the Fellowship examination is not taken during the same year, no examination fee will be required in connection with the presentation of a thesis. All theses submitted are, if accepted, to be the property of the Society and may, with the approval of the Council, be printed in the *Proceedings*.

 SYLLABUS.

ASSOCIATESHIP.

Part I.

1. Elementary algebra up to and including the binomial theorem and the use of logarithms, and compound interest and annuities-certain.

NOTE.—Under this topic the student is expected to understand what is presented in the ordinary college algebras through the binomial theorems but excluding exponential and logarithmic series. He is expected to understand the ordinary use of logarithms and to be able to handle the simpler problems in compound interest and annuities-certain as they are presented in the average college algebra, without going into the more intricate problems of bond amortization and similar matters.

2. Double entry bookkeeping.

3. Elements of statistics, including theory of compilation, tabulation and presentation, but excluding critical mathematical analysis.

Part II.

1. Elements of the theory of probabilities—algebraic treatment only.

2. Policy forms and underwriting practice in casualty insurance, viz., personal accident, health, liability, workmen's compensation, fidelity, surety, plate glass, steam boiler, burglary, fly wheel, automobile, workmen's collective, credit.

3. Simple practical problems relative to procedure in compilation and use of statistics relating to casualty (including social) insurance problems.

EXAMINATION REQUIREMENTS.

4. Simple practical problems relating to procedure in insurance accounting and statistics, including the preparation of annual statements and schedules.

NOTE.—As respects items 3 and 4, the student is expected to be prepared to carry through, under instructions, such compilations of statistical data as are usually made in the office of a casualty company and to carry through the usual accounting work, including the preparation of the statement. He should also be prepared to adapt, for the use of his particular company, statistical and accounting methods in general use. It is not expected that the candidate for Associateship should be prepared to work out new plans and methods for developing data and answering intricate questions, facility for coping with the latter type of problems being among the qualifications required for Fellowship.

5. Insurance law, including the more important statutes of the United States and Canada (for Canadian candidates) relating to casualty insurance.

FELLOWSHIP.

Part I.

1. Advanced algebra, elementary differential and integral calculus and elementary calculus of finite differences.

2. Critical analysis of statistics, including elementary mathematical theory.

3. Elements of the theory of life contingencies, including the calculation of present values of annuities based upon life contingencies.

4. Economic theory of insurance, including the theory of social insurance.

Part II.

1. Advanced practical problems in the compilation and use of statistics relating to casualty (including social) insurance problems.

2. Calculation of premiums and reserves for accident, sickness, workmen's compensation and other branches of casualty insurance, including consideration of basis of reserve.

3. Advanced practical problems in insurance accounting and statistics, including the preparation of annual statements and schedules.

4. Underwriting problems in casualty insurance, including inspection of risks, adjustment and settlement of claims, etc.

“Recommendations for Study” is a pamphlet which outlines the course of study to be followed in connection with the above syllabus. Copies of this pamphlet and also past examination questions may be obtained without charge, upon application to the Secretary-Treasurer.

1924 EXAMINATIONS OF THE SOCIETY

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EXAMINATION FOR ENROLLMENT AS ASSOCIATE

PART I

1. (a) Solve $(x^2 + 7x + 5)^2 - 3x^2 - 21x = 19$
 (b) Given $\log 2 = .30103$, solve for x ,

$$\left(\frac{4}{5}\right)^x = \frac{1}{2}$$

2. Solve $x + \frac{1}{y} = \frac{3}{2}$

$$y + \frac{1}{z} = \frac{7}{3}$$

$$z + \frac{1}{x} = 4$$

3. (a) A banker discounts a bill for \$1,000 due in two years, paying for it \$907. What rate of interest does he realize?
 (b) If the rate of interest is 4% per annum, what is the corresponding nominal rate of interest payable quarterly?
4. What is a collateral loan? What essential information regarding collateral loans is called for in the annual statement blank schedules?
5. (a) Define and differentiate between "Receipts and Disbursements" and "Revenue and Expenditure."
 (b) Define: Current Assets, Deferred Charges, Fixed Liabilities, Treasury Stock.

1924 EXAMINATIONS OF THE SOCIETY

6. Classify each of the items named below under one of the following: (1) Admitted Asset, (2) Not Admitted Asset, (3) Non-ledger Asset, (4) Liability:
- Mortgage Loans
 - Dividends declared and unpaid
 - Furniture and fixtures
 - Market value of bonds over book value
 - Premiums over threemonths' due in course of collection.
7. (a) Distinguish between mode, arithmetic average, mean and median. Give an illustration in each case and state the advantage and/or disadvantage of the use of each as a type.
- (b) Define; correlation, statistical coefficient, dispersion, demography.
8. Show how index numbers of cost of living are constructed. Give arguments for and against the use of index numbers as a determining factor for wage scale in an industry which has come before a committee of arbitration.
9. If it is now between 10 and 11 o'clock and 6 minutes hence the minute hand of the watch will be exactly opposite to the place where the hour hand was three minutes ago, what is the exact time?
10. (a) Show that the value of a perpetuity is $\frac{1}{i}$ where i is the rate of interest.
- (b) Given at $1\frac{3}{4}\%$, amount to which I will accumulate in 20 years = 1.414778.
 present value of 1, 20 years hence..... = .706825.
 present value of 1 per annum for 20 years... = 16.752881.
 Find the purchase price of a 4% bond of \$1,000 running for 10 years with half yearly interest so that purchaser may earn $3\frac{1}{2}\%$ on investment.

1924 EXAMINATIONS OF THE SOCIETY

11. A and B can do a piece of work together in 3 days, A and C in 4 days, B and C in $4\frac{1}{2}$ days. How long will it take each alone to do the work?
12. Find the coefficients of x^{32} and x^{-17} in $\left(x^4 - \frac{1}{x^3}\right)^{16}$.
13. Give a brief discussion of the following tables touching on (a) source of data and (b) purpose they serve: Standard Accident Table, American Accident Table.
14. What is cost accounting? Explain briefly its application to a Casualty Company writing several lines of insurance.
15. You are called in to open a set of double entry books for a corporation which has authorized capital stock of \$150,000.00, of which \$100,000.00 is common stock and \$50,000.00 preferred stock. Of the preferred stock there is outstanding \$25,000.00, this amount being paid for in cash (par value \$100.00 per share). Fifty thousand dollars of common stock (par value \$100.00 per share) was given as a bonus with the preferred stock.
 - (a) What are the opening entries?
 - (b) Construct trial balance.
16. Distinguish between
 - (a) Nominal and effective rate of interest.
 - (b) Par value stock and no par value stock.
 - (c) Scrip and rights.
 - (d) Amortized value of bonds and market value of bonds.

PART II

1. Find the sum of all the numbers which can be formed with all of the digits 1, 2, 3, 4 and 5, no digit being repeated in any number.
2. In a shooting competition a man can score 5, 4, 3, 2 or 0 points for each shot. Find the number of different ways in which he can secure 30 in 7 shots.

1924 EXAMINATIONS OF THE SOCIETY

3. Outline briefly the coverage and basis of premium for
 - (a) Manufacturers' and Contractors' Property Damage Insurance
 - (b) Elevator Property Damage and Collision Insurance
 - (c) Owners,' Landlords' & Tenants' Property Damage Insurance
 - (d) Theatre Property Damage Insurance.

4. How would you justify to an assured?
 - (a) Minimum premium on Compensation and Liability policies.
 - (b) Additional interest charges for Public Liability lines but not for Compensation Insurance.

5. (a) A co-partnership operating an automobile garage in the name of Smith and Jones desires to extend the insurance to protect the interest of the two co-partners as individuals for the operation of automobiles owned by or in the custody of the co-partnership. Outline methods of rating this submission.
 - (b) The same co-partnership also desires to extend the garage policy to cover the liability of Smith as respects a personally owned car used exclusively for his own pleasure purposes. Outline method of rating.

6. An employer who has rejected the compensation act of an elective state is sued at common law by an injured employee who has also rejected the act.

Are the common law defenses available to the employer?

To what extent, if any, is evidence of the employer's negligence, material?

7. What is a control account? Give an illustration of its use.

1924 EXAMINATIONS OF THE SOCIETY

8. Construct from the items given the following statements in accordance with the Convention form of blank
- Income and Disbursements
 - Ledger Assets
 - Assets, Liabilities, and Surplus.

Book value of bonds.....	\$181,775
Salaries paid during year.....	4,925
Interest due and accrued.....	2,000
Premiums written.....	65,000
Cash in office.....	2,000
Reserve for losses and claims.....	130,000
Claims for reinsurance in admitted company.....	8,000
Interest received during year.....	5,700
Deposits in banks.....	76,000
Ledger assets previous year.....	284,500
Net amount paid policyholders for losses.....	47,000
Unpaid salaries, taxes, etc.....	10,000
Premiums unearned.....	20,600
Premiums in course of collection:	
Effective before Oct. 1	9,000
Effective after Oct. 1	19,000
Miscellaneous expenses paid during year.....	3,500
Estimated expenses of investigation and settlement of unpaid claims.....	3,500
Commissions paid.....	12,000
Capital Stock.....	100,000

9. (a) A party of n persons sit at a round table. Find the odds against two specified individuals sitting next to each other.
- (b) A party of 5 persons, 3 of whom can drive, wish to ride in a 7-passenger automobile. In how many ways can they arrange themselves?

1924 EXAMINATIONS OF THE SOCIETY

10. Two white and three black checkers are to be arranged on a checker board of 64 squares. No two men can occupy the same square. The two white men may be placed on either black or white squares and the three black men on white squares only. In how many different arrangements can they be placed? What is the probability that all the men will be on white squares?

11. If you should negligently injure a pedestrian with your insured automobile, and the insurance company should contest the resulting suit instead of accepting an offer of settlement for \$1,000, what would be your rights against the insurance company in case of final judgment for \$15,000, under a policy with a \$5,000 limit?

12. (a) What coverage for medical aid is furnished under a compensation policy?
(b) What conditions should be considered by an underwriter before assigning more than one manual classification under a compensation policy?

13. The owner of a fleet of 22 taxicabs desires quotation on his automobile public liability insurance and submits the following information:

There are 22 machines owned with 15 drivers operating during the day and the same number during the night. In other words, he has a total of 30 chauffeurs for the two shifts.

Explain whether the payroll plan, automatic basis or specified car basis is best suited for such a submission.

14. The owner of an automobile storage garage wishes to purchase insurance covering damage to property in his care. Outline basis on which coverage is provided and also method of premium calculation.

1924 EXAMINATIONS OF THE SOCIETY

15. (a) What does a Boiler Policy cover in addition to the property of the assured?
- (b) What is the particular definition of accident which determines whether the damage produced is covered under a Boiler Policy?
16. In what ways does the underwriting of non-cancellable accident and health policies differ from the underwriting of cancellable policies?

EXAMINATION FOR ADMISSION AS FELLOW

PART I

1. (a) Solve $x + y = 1072$.
- $$x^{\frac{1}{3}} + y^{\frac{1}{3}} = 16.$$
- (b) For what values of k are the roots of the equation $\frac{x^2 + ax}{bx - c} = \frac{k + 1}{k - 1}$ equal in magnitude and opposite in sign?
2. (a) Find the first three terms in the expansion of $\frac{(1 + x)^{\frac{3}{2}} + \sqrt{1 + 5x}}{(1 - x)^2}$.
- (b) Find the value of n if the coefficients of x of the fourth, fifth and sixth terms of the expansion of $(1 - x)^{-n}$ are in arithmetic progression.
3. (a) If $y = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \dots$
- show that $x = y + \frac{y^2}{2} + \frac{y^3}{3} + \dots$
- (b) Determine for what values of x the following series is divergent and convergent
- $$1 + \frac{x}{2} + \frac{x^2}{5} + \frac{x^3}{10} + \dots + \frac{x^n}{n^2 + 1} + \dots$$

1924 EXAMINATIONS OF THE SOCIETY

4. (a) Prove by mathematical induction that

$$1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{1}{6} n (n + 1)(2n + 1).$$
- (b) If $u_x = x^x + \frac{(x - x^3)^{\frac{4}{3}}}{x^4} + a^{\frac{1}{\log x}}$, find $\frac{du}{dx}$.
5. (a) If $y^2 - 2xy = a^2$, find $\frac{d^2y}{dx^2}$ in its simplest form.
 (b) Expand $\log(1 - x)$ by Maclaurin's Theorem.
6. (a) If $u_x = \frac{(x^2 - 2)^3}{x^5} + e^{5x} + a^{6x}$, find $\int u dx$.
 (b) Find the value of $\int \frac{x^2}{(x + 2)^2(x + 1)} dx$.
7. (a) If $u_0 = 3, u_2 = 3, u_6 = -32$ and $u_{10} = 83$, find the intervening terms on the assumption that third differences are constant.
 (b) If $\log_{10} 55 = 1.7404, \log_{10} 60 = 1.7782, \log_{10} 65 = 1.8129, \log_{10} 70 = 1.8451$ and $\log_{10} 75 = 1.8751$, find $\log_{10} 64$.
8. (a) Derive a formula for the sum of n terms of a series expressed as a function of the first term and the successive differences.
 (b) By the method of finite differences, obtain a formula expressing the sum of the cubes of the first n natural numbers.
9. (a) Define *probable error* and discuss circumstances affecting its reliability as an index of dependability of measurements.
 (b) Explain what is meant by a *regression curve* and the *line of regression*.

1924 EXAMINATIONS OF THE SOCIETY

10. Explain briefly how to calculate the coefficient of correlation from the following table of heights and weights

		HEIGHTS										Total Pre- quencies	
		63	64	65	66	67	68	69	70	71	72	73	
WEIGHTS	107	..	1	1	..	1	..	..	..	..	..	..	3
	112	1	2	1	1	..	1	..	..	..	..	..	6
	117	1	2	3	2	2	2	1	1	..	..	..	14
	122	1	1	3	4	4	5	1	1	..	..	..	20
	127	..	2	2	4	5	5	3	3	1	..	..	25
	132	..	1	3	6	6	6	5	3	1	1	..	32
	137	..	1	2	5	6	8	7	4	3	1	..	37
	142	..	..	2	4	5	6	5	3	5	2	1	33
	147	..	..	1	2	3	4	5	4	3	1	..	23
	152	..	..	1	1	2	5	4	3	2	..	1	19
	157	..	..	..	1	1	2	3	2	2	1	..	12
	162	..	..	..	..	..	1	2	2	1	..	1	7
	167	..	..	..	..	..	..	1	2	..	1	..	4
	172	..	..	..	..	..	..	..	..	..	1	..	1
Total Pre- quencies		3	10	19	30	35	45	37	28	18	8	3	236

11. (a) Calculate the mean deviation and the standard deviation for height 67 inches in the preceding table.
- (b) Sketch roughly the curve $y = e^{-h^2x^2}$ and discuss the effect of varying the value of h on the form of the curve.
12. (a) Express $a_x^{(m)}$, \bar{a}_x , $a_{xy|\bar{n}|}$ and a_{xy} approximately in terms of commutation column functions.
- (b) Show that $\mu_{xy} = \mu_x + \mu_y$, if the rate of mortality follows Makeham's law.
13. Express the following probabilities involving two lives within n years in terms of probability symbols.
- that neither will die.
 - the survivor will die.
 - exactly one will die.
 - at least one will die.
 - not more than one will die.

1924 EXAMINATIONS OF THE SOCIETY

14. Under workmen's compensation a widow's benefit of \$10 per week to run for a maximum of 300 weeks began 100 weeks ago and regular payments were made until 20 weeks ago, when she received \$1,000 in commutation of n future payments. How would you determine from contingent life and remarriage annuity tables of the usual form giving the present value of \$1.00 per week for any required number of weeks, how much to pay now in one sum in full commutation (a) if n is deemed to have been the n payments next due 20 weeks ago; (b) if n is deemed to have been the last n of the original 300?
15. Discuss briefly the development of pension funds as a part of social insurance legislation, both in this country and abroad.
16. Discuss the economic theory of risk in insurance.

PART II

1. Describe briefly the investigation you would make for a reclassification of occupations in the Accident insurance manual.
2. Discuss the general accounting, statistical, cost accounting and actuarial functions and relationships in a casualty insurance company.
3. What items would you introduce on a punch card or cards to investigate the experience in all lines of Public Liability insurance other than Automobile?
4. (a) It is observed that industrial accidents greatly increased in the last two or three years and appear to be decreasing at the present time. What correlations would you make to determine the significance of these facts to the business of Workmen's Compensation insurance?
(b) Outline a plan for constructing an excess limits premium table for Public Liability risks.

1924 EXAMINATIONS OF THE SOCIETY

5. If the annual premium for a steam boiler or liability policy has been determined, how would you calculate a single premium to cover three years risk that will be its equivalent if interest only is taken into consideration? What other factors should affect the final quotation?
6. (a) Explain the use of a Wage Distribution Table in the calculation of limit factors employed to measure the effect of maximum and minimum limits of weekly compensation on the rate level for Workmen's Compensation Insurance.
(b) Explain the theory of a short rate cancellation table and outline briefly the process which should be followed in constructing one.
7. (a) Discuss all reserves included in the annual statement with reference to fidelity and surety insurance with special reference to the reasons for the necessity of such reserves.
(b) One cent of each \$100 of payroll has been added each year to every pure premium under Workmen's Compensation of one of the states to provide for catastrophe. How would you proceed to calculate its actual amount at any year end? How would the amount determined be entered in the annual statement?
8. (a) In projecting Workmen's Compensation rates effective for 1924 and 1925, how would you proceed from the loss experience of 1918-1922, first as to pure premium and then as to loaded premiums? How would you compare the resulting general rate level with that of the preceding manual year?
(b) How is the cost of medical and hospital attention under Workmen's Compensation probably affected by placing general limits on the total per case?
9. Describe and discuss the Casualty Experience Exhibit required to be filed with the New York Insurance Department.

1924 EXAMINATIONS OF THE SOCIETY

10. (a) Distinguish between the treatment of "earned premiums" as ordinarily used in accounting and as allocated in Schedule P and Schedule W for Workmen's Compensation Insurance.
(b) Discuss the consistency or inconsistency of the treatment of reinsurance on pages 2 to 5 of the annual statement of the reinsured company.
11. (a) How would you extract from the general accounts or special accounts the amount of the company's loss expense paid in the year as defined by law and Schedule P in the annual statement.
(b) (1) The premium on a policy contract effective January 1 is paid in December. State explicitly how you would take care of this premium in the annual statement of the year in which it was received; in the next annual statement.
(2) How is premium that is charged off as uncollectible reported in the annual statement? Does the premium exhibit in annual statements eventually become adjusted to the actual premiums received?
12. (a) Give the principal causes of losses under Miscellaneous Property Damage insurance.
(b) Describe the method of writing Automobile fleet risks.
13. (a) State your views with respect to the experience rating of individual owners of automobiles.
(b) Compare the methods of covering charges for additional interests under Automobile Liability and Teams liability insurance. Discuss the so-called Omnibus coverage.
14. Name eight points of information of material value in the underwriting of Plate Glass insurance. Discuss briefly the possibility of applying the principles of experience rating to the Plate Glass business.

1924 EXAMINATIONS OF THE SOCIETY

15. (a) Contrast the risk and coverage included in residence burglary, theft and larceny, and bank burglary and robbery insurance.
(b) What features of a credit insurance policy determine the amount payable in event of loss?

16. Outline the chief differences between the Revised (National) Workmen's Compensation Experience Rating plan and the 1920 Plan, pointing out the advantages and disadvantages of the revised plan as compared with the pre-existing one.