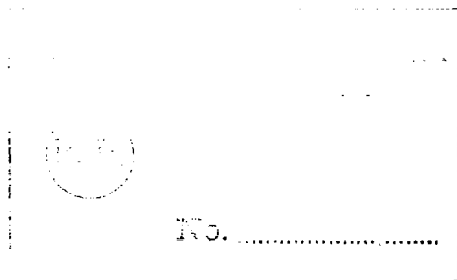


PROCEEDINGS
OF THE
Casualty Actuarial Society
ORGANIZED 1914

November 16, 1951



Printed for the Society by
MAIL AND EXPRESS PRINTING CO., INC.
160 Varick Street
New York 13, N. Y.

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NOTICE

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

**"Give me insight into today, and you may
have the antique and future worlds."**

—Ralph Waldo Emerson

PROCEEDINGS

May 10-11, 1951

THE CASUALTY ACTUARIAL PROFESSION

PRESIDENTIAL ADDRESS BY HARMON T. BARBER

The booklet which was published last Fall by the Society under this title invites the attention of students to the opportunities for an interesting business career as a casualty actuary. In these remarks this afternoon, I have no intention of attempting to repeat the message so well presented there. Rather, I would like to indulge in a short period of critical introspection, to see if our calling measures up to the qualifications usually associated with the designation of "profession" and to discover, if possible, some ways in which we might increase our professional stature.

Let us start with a few elementary considerations. What is a casualty actuary? What sort of a description would be most helpful to an uninformed person in identifying a casualty actuary? A moment's reflection leads to the realization that these are not simple questions which can be answered in a few words. The dictionary definition of "actuary," which seems to be quite inappropriate for our needs, is "an expert who calculates insurance risks and premiums." If it is accepted that a casualty actuary is one who deals with casualty insurance we have a more nearly complete definition, yet one which is practically useless as a means of identifying a casualty actuary. Very few casualty actuaries spend any of their productive time in calculating casualty insurance risks and premiums. Thus, if a more accurate and explicit definition is wanted, it is apparent that one must be improvised. It would be not only erroneous but presumptuous to state that a person should be a Fellow of this Society to be considered a bona fide casualty actuary yet it might well be concluded that all Fellows of this Society are casualty actuaries. Nor is it possible to rely on the occupation of a person as the sole basis of identification. A review of the membership roster of the Society will demonstrate this fact. Here will be found the names of insurance company presidents, college professors, industrial statisticians, state government

officials, as well as actuaries employed by casualty insurance carriers,—the ordinary variety of casualty actuary which comes to our collective mind when the term is mentioned. Casualty actuaries obviously are not a homogenous group of individuals and a longer explanation such as the following may be necessary to properly describe them.

A casualty actuary may be said to be one who, by education, training, and experience, is qualified to analyze in a logical and resourceful manner, many technical problems of the casualty insurance business such as those relating to rate making, risk rating, reserves and financial statements, as well as problems frequently involving the compilation and interpretation of statistical data. He should also have the capacity for reaching sound and decisive conclusions and may be called upon occasionally to express opinions on matters of business policy against a background of general economic conditions.

A casualty actuary may be an employee of an insurance carrier, a rating bureau, a state insurance department, or he may be a consultant whose services are available on a fee basis to insurance carriers and to members of the public in a wide variety of insurance problems.

The functions of a casualty actuary employed by an insurance carrier are numerous. The actuary is expected to develop, maintain, and project all calculations and statistics necessary to the determination of premium rates, reserve computations, and underwriting profit and loss. He is expected to conduct research, analysis, and study of general insurance problems. He makes the actuarial computations which may be necessary for the payment of claims. He prepares annual statements and periodic reports of business written, underwriting profit and loss, competitive results and competitive standings with other carriers. The actuary provides consultation and data necessary for expense allocation. He prepares and assists in the preparation of tax returns. There are many other problems too nondescript in character to enumerate which are referred to the company actuary for study and recommendation.

The casualty actuary employed by a rating bureau deals with such matters as the collection and compilation of the total combined experience reported by member companies; the development of classification rates by procedures initiated and maintained under his guidance and supervision; the development and maintenance of rating plans for individual risks; the explanation and presentation of rates and rating methods to state rate regulatory authorities for approval; the providing of consultation service and advice to member carriers on matters of common interest; and the preparation of various studies and statistical exhibits relating to the insurance coverages which are under the jurisdiction of the rating bureau.

The casualty actuary in a State Insurance Department deals with the review and approval of rates and rating plans filed and proposed for use by various rating bureaus; the periodic examination of indi-

vidual insurance carriers and of rating organizations; and the review of annual statements of carriers and of special statistical schedules or supplements relating to loss and expense experience filed by the carriers in accordance with instructions issued by the Department. Since the work of the Department actuary is closely related to the work of rating bureaus and individual carriers, he has to be thoroughly conversant with the activities of fellow actuaries employed by these organizations.

As a public consultant, the casualty actuary is confronted with a wide variety of problems and tasks. He may be called upon to serve carriers, rating organizations, and state insurance departments in a capacity ordinarily filled by a staff actuary or he may be engaged to check, audit, or improve on procedures maintained by a staff actuary of any of these organizations. When employed by an assured he may be directed to supervise self-insurance practices or to inquire into insurance rates and ratings for the purpose of furthering his client's interests in these matters. He may make appearances for his client at public hearings held in connection with the contemplated revision of rates or rating plans.

Now that these thoughts have been collected in answer to the questions of what is a casualty actuary and what does he do, it is in order to proceed to the original query of whether the practice of casualty actuarial science is entitled to be called the casualty actuarial *profession* rather than the casualty actuarial trade or craft. Naturally the answer to this question is in the affirmative,—it is the casualty actuarial profession. In some few respects the practice of casualty actuarial science differs from the practice of the recognized professions but in many others there is a close similarity.

The professions as typified by law and medicine require a thorough educational background and a period of preliminary training or internship before a successful struggle with qualifying examinations opens the door to membership in bar association or medical society and leads eventually to practice in the profession. It is not difficult to discern a very close parallel between the casualty actuarial profession and the legal and medical professions in so far as these criteria are concerned. The student with actuarial inclinations will do well to elect his vocation sufficiently early in his college career so that he may study subjects which will be of value later. Formal study beyond the four-year academic course, such as in a graduate school, usually is not required. The examinations for admission to membership in the Casualty Actuarial Society cover a wide field and require some practical experience before they can be mastered. Of course, it is not necessary to be a member of the Society before engaging in actuarial work but a membership certificate is generally regarded as a desirable credential and a symbol of basic proficiency.

Membership in professional societies is sometimes considered to be exclusive or highly restrictive. The limitation is not because of social

distinctions but rather because of the difficulty in meeting the prescribed qualifications for membership. In this respect it would appear that the Casualty Actuarial Society can take its place rightfully along with the other professional groups. Recent examination candidates will testify willingly in support of this observation.

Some of the other professions have an organized procedure for disciplining members who transgress certain accepted ethics of the profession. Action of this kind is infrequently invoked and only for flagrant violations which might reflect unfavorably upon fellow members of the profession. The very existence of the disciplinary procedure probably exerts a restraining influence on some who might be tempted to stray. Fortunately, up to the present time, the Casualty Actuarial Society has not found it necessary to provide for reading any member out of the Society for professional misconduct. The only reason for enforced termination of membership, according to the Constitution and By-Laws, is for non-payment of dues and even in this case there is a provision for reinstatement, if payments in arrears are settled. There is no vigilance committee of the Society to censure any transgressor, no penalty to be imposed for the infraction of accepted professional conduct. This is one respect, therefore, in which the casualty actuarial profession does depart from other professions.

The trades or crafts are in some ways not far different from the professions in certain of these characteristics. A prolonged period of training and apprenticeship is required to master the skills even though an extensive educational background is less essential because of the greater dependence on manual dexterity rather than on mental proficiency. The guild or the trade union corresponds to the professional society and frequently the licensing of the worker by local governmental authority supplements the standards imposed by the union as to the degree of expertness required of members.

It would seem that other and even finer distinctions must be found to demonstrate convincingly that the casualty actuarial calling should be definitely catalogued as a profession. For example, the professional man is usually an individual worker who is continually confronted with the necessity of making decisions based on his own judgment. As patients or clients we seek the advice of one doctor or one lawyer and rely on his recommendations. To be sure, he can and will ask for the advice of colleagues if the case presents baffling aspects which leave him in some doubt as to the wisdom of his own decision, but as a general rule the professional man operates independently. The artisan or mechanic, on the other hand, is frequently employed as one of a crew of fellow experts who work jointly on a project, either all engaged in the same specific tasks or each one standing ready to pick up at any time and carry on the work of another without interruption. It seems, therefore, that the interchange of individual workers is frequently encountered in the trades while it rarely occurs in the professions. There is less individuality of expression and more uniformity in technique in the trades or crafts.

Where does the casualty actuary stand as respects this particular point? Up to the present time, the small number and wide distribution of casualty actuaries have been such as to provide for little more than individual effort in solving practical problems in the actuarial field of casualty insurance. Only very rarely is there opportunity for checking decisions or sharing responsibility with other practicing actuaries. On many occasions the actuary is called upon for an opinion and is expected to respond with a definite answer identical with the response which would be forthcoming from any other equally proficient actuary. It seems almost as though by popular opinion the actuary is expected to function independently as a professional man, but his response is assumed to be as lacking in individuality as that of a tradesman. One result of this popular conception is an observed inclination on the part of the actuary to abandon the use of personal judgment on specific questions in favor of a standardized mechanical method, or a formula, whenever such a practice seems to be at all feasible. A formula seems to be less vulnerable to attack, and seems to borrow great moral strength from the air of predestination which surrounds the results produced by it. It has a real advantage in preserving consistency in results, since a formula will produce an identical answer from any one set of data regardless of the operator. Rightly or wrongly, consistency has come to be regarded as one of the principal virtues of many rate making procedures. That this is so is irksome to those who have a strong dislike for regimentation. Certainly a more professional attitude would favor attacking each problem from the point of view of what appears to be right and why it seems to be right for the case under consideration, rather than to rely blindly on a formula or method found to have been acceptable under previous similar circumstances. Also, the frequent resort to a standardized method or formula encourages imitation and the establishing of routines of untested merit as a means of lessening the responsibility of others than actuaries for exercising good judgment in individual instances. The danger here is that a rate making procedure, for example, may become cluttered up with a number of unnecessary gyrations without appreciable advantages or improvement in the results.

There is another popular though uncomplimentary conception of the actuary which we should strive to correct in making progress toward an improved professional standing. This one pictures the actuary as likely to be intrigued by details which have little significance in their effect on ultimate results. Unfortunately, there is probably some basis for this opinion. Take, for example, one detail in the procedure for evaluating the average percentage increase in compensation benefits brought about by an amendment to the law. The method was devised by actuaries and has been maintained by actuaries with very little change over a period of thirty years. It consists of taking a standard distribution of accidents by type of injury and estimating the aggregate costs of compensation payments first under the old benefits and then under the new benefits, thus making possible a

direct comparison of the two costs. Standard practice requires that for each benefit with a duration exceeding one year, the present value of an annuity certain will be substituted for the terminal value. This is a practice which may add considerable to the academic satisfaction of the actuary but the discount procedure probably does not affect the final estimate in the slightest degree and, therefore, represents a definitely unnecessary refinement.

Another instance of the same sort of excessive attention to details may be pointed out in connection with the maintenance of company loss reserves for certain lines of casualty insurance. The demand for rigid accuracy in tabulating the aggregate estimates of outstanding losses might seem unreasonable since each individual case value represents some one person's guess as to the amount of the liability. The actuary then proceeds to add to this accumulated aggregate a reserve for incurred but not reported claims and supplementary reserves for reopened cases or for even less definite liabilities in such broad amounts as to completely obliterate in the total reserve any refinement due to an exact recording of the individual case values. Of course, there are other considerations which justify the meticulous care demanded here, one being the general observation that approximate methods cannot be tolerated in reserve procedure or in the preparation of other financial records without risk of a general deterioration in accuracy which might lead to eventual trouble.

There are others than actuaries in the casualty insurance business who are not deterred by details and who have a propensity to follow experience indications precisely. Certain of the current rate manuals of casualty insurance exhibit a pattern of detail as to classifications and territories which could hardly be sustained by underwriting judgment alone without substantial dependence on accumulated statistics. Yet it is quite probable that considerable criticism of certain unpopular refinements in rating procedure is ascribed to the actuarial influence by some who are not informed as to the facts. Here is an opportunity for the actuaries to render a real service to the industry by taking a definite stand against complication and in favor of simplification. If the actuarial influence has any weight, it might very well be expended in emphasizing that there is no virtue in unnecessary refinement.

Some of the professions have a code of ethics which is carefully observed and passed along from one generation of professional men to the next. In ancient times young men about to enter the practice of medicine were required to take the Hippocratic oath, a pledge to follow certain approved practices and to avoid others which would undermine the confidence of the public in the entire profession. This forms the basis of ethical conduct in modern medicine.

When a new member of the clergy of some religious denominations is ordained at the start of his professional career he is examined and questioned at length by a group of elders and then publicly charged

with the responsibilities of the office he is about to assume. Similarly, in the legal profession when a lawyer is admitted to the bar he is given to understand what is expected of him in the way of future professional conduct.

In the casualty actuarial profession it is not the practice to deliver an oral charge to the novice actuary and there is no written code of ethics for the guidance of the members of this Society. Possibly none is needed now but a simple statement of a few cardinal principles might be useful in the indoctrination of beginners at some future time. With no desire to usurp a responsibility which might well be delegated to an appointed group, the following statement is offered as an outline of a creed which might serve temporarily until a permanent one can be established:

To maintain a high sense of honor, integrity, and sincerity in all business relations; to search unceasingly for the whole truth without prejudice and without regard for consequence; to preserve a logical perspective of the relative importance of values.

To be vigilant in safeguarding the financial protection offered to policyholders and claimants; to be ever mindful of the obligation that premiums shall not be unfairly discriminatory; to strive by original research and study to add to the fund of knowledge which serves all actuaries.

To be considerate of the opinion of his colleagues and to share with them the fruits of his knowledge, training, and experience; to avoid the complex and favor the simple; and to conduct himself at all times so as to reflect credit upon the profession—this could be the code of the casualty actuary.

The merits of these simple precepts are obvious and there is no need to belabor them unduly. Their particular application in the case of the casualty actuary arises from the fact that it is of importance for the actuary to establish himself in the high regard of his associates in the casualty insurance business. There will be times when it is impossible to adequately explain to the layman conclusions based on strictly theoretical considerations, when the recommendations of the actuary will have to be taken largely on faith, and when a previous record of fidelity and integrity will inspire confidence in the opinions expressed. To that end, a brief simple creed or code of ethics which is faithfully practiced by all actuaries will prove most helpful.

These scattered comments, and this recital of details familiar to many, are intended to serve the purpose of presenting a clearer understanding of the casualty actuary and his activities. Possibly these remarks may be of interest to the rate makers and statisticians of lines of insurance other than life and casualty to whom we have recently extended an invitation to consider membership in this Society. They may have more than a casual concern in learning something more about the type of individuals who presently compose our membership. Fur-

ther, in spite of a deep ignorance about the subject of public relations, it seems as though one fundamental applied to the needs of this Society might be expressed by the statement that to know the casualty actuary is to understand him and to understand him is to like him. It would be a source of great satisfaction if these few simple remarks could contribute in the slightest measure to extend the acquaintance, to promote a better understanding, or to lead to a greater appreciation of the casualty actuary among and by his associates in the insurance business.

RATE REGULATION AND THE CASUALTY ACTUARY

BY THOMAS O. CARLSON

*“ . . . could you and I with Him conspire
To grasp this Sorry Scheme of Things entire,
Would not we shatter it to bits—and then
Re-mould it nearer to the Heart's Desire!”*

—Omar Khayyam

June 5, 1944 is a date that, because of its unique significance in the insurance business, is just as well known to the members of this Society as October 12, 1492 or July 4, 1776. On that date the Supreme Court of the United States handed down its decision in the case of the United States vs. South-Eastern Underwriters Association.

From the outset it has been evident that a large number in the industry regard that decision and its sequel with feelings analogous to those stirring within President Theodore Roosevelt when he referred to Eugene V. Debs as “a redundant man.” It is with us, however, as certainly as death and taxes, and no moves of real import can be made in the industry today without due reflection on and recognition of its results.

The historical dividing line established by that date was at least as sharp in the actuarial field as in other areas. Almost seven years have passed since that decision, seven years into which have been packed a host of developments, and the pattern of rate regulation is now sufficiently clear to justify an initial review of its impact upon actuarial thought in the casualty insurance field. The perspective is still so foreshortened, however, that a review is difficult and it is furthermore sufficiently involved with legal interpretation to make impossible a complete coverage by an actuary alone. The field of commentary upon the more legal aspects has been covered by Mr. Donovan's paper on “The New Era of Casualty Rate Regulation,” P.C.A.S. Vol. XXXIV. Since his paper does not go into details as respects the various state laws, however, sections of those laws pertaining particularly to rate making are summarized in the second section of this paper, and in greater detail in Appendix A.

For convenience this discussion has been divided into six sections:

- I. Pre-S.E.U.A. Regulation
- II. Post-S.E.U.A. Legislation
- III. Statistical Plans
- IV. Manual Rate Making Procedures
- V. Individual Risk Rating Plans
- VI. Summary and Prospectus

My remarks are conditioned by the limitations of my experience,

and are restricted primarily to the liability, burglary, glass and boiler and machinery lines, with only passing or illustrative comments on the other casualty coverages, and with emphasis on the viewpoint of a rating organization representative as the only viewpoint I can present authoritatively. And I trust even the most serious-minded will forgive my lightening the discussion with a few expressive quotations. Many of them may observe that the most obviously pertinent one of all, familiar and beginning "Fools rush in . . .", has not been included.

I. PRE-S.E.U.A. REGULATION

*"How dear to this heart are the scenes of my childhood,
When fond recollection presents them to view."*

—Samuel Woodworth

Rate regulation in the casualty insurance business was initiated in the beginning of the second decade of this century insofar as it involves the approval of rates. Some of the casualty writers had exchanged experience as far back as 1895, and with the federal emphasis upon anti-trust legislation around the turn of the century quite a number of states had made effective anti-compact legislation which had an indirect bearing on the insurance business, but it seems to have been only with the introduction of the workmen's compensation legislation that any of the states passed laws under which the Insurance Departments undertook to regulate rates through direct approval power. It was not mere coincidence that the founding of this Society was almost simultaneous with the initiation of workmen's compensation legislation and of rate regulation in other casualty lines.

COMPULSORY CASUALTY LINES

From the very outset there was widespread feeling among legislators that the rates for a compulsory form of insurance should not be subject on the one hand to the vagaries of competitive bidding, nor on the other hand to the dangers considered to be potentially inherent in an inter-company agreement on rates, without some control by a governmental authority. These views prevailed in most of the larger industrial states and it is significant that very soon after the National Council on Compensation Insurance was organized in 1920, with equal voting powers to the stock and non-stock groups of carriers, a representative of the National Association of Insurance Commissioners was permanently installed as a sort of watchdog in the office of that organization. This arrangement has now been superseded but it was in effect through the important formative period during which many crucial problems were resolved, and the influence of the commissioners' representative (Honorable C. W. Hobbs who served as Editor of this Society for many years) in the solution of those problems cannot be over-emphasized.

The historical development of regulation in the workmen's compensation field has been covered so thoroughly in papers previously presented to the Society that a review in detail at this time would be repetitious.¹ A few general observations should be noted, however, because they have a bearing upon developments during the past five or six years in the other lines.

Early in the history of the National Council there was established what was called a "permanent rate-making procedure," the rigidity of which landed the carriers in such extreme difficulties that its permanence fortunately dissolved into a variable pseudo-permanence like that of the surface of the ocean. It is from the lessons learned as a result of that experience, in large measure, that so much emphasis is laid by many actuaries currently upon the necessity for maintaining a substantial degree of flexibility in rate-making procedures.

When the compulsory insurance idea first spread to other lines with the enactment in 1927 of the Massachusetts law requiring automobile bodily injury liability insurance, strong regulatory powers, including the fixing of rates, were granted to the Insurance Commissioner.

The compulsory idea in automobile liability insurance threatened for a time to spread as the workmen's compensation principle had done. This threat carried with it a companion threat of the state as a direct participant in the business of insurance. Under the workmen's compensation legislation monopolistic state funds were at the very beginning established in a number of states. These threats in the automobile insurance field were turned aside by the development of financial responsibility legislation which, it is anticipated, will have the ultimate effect of proceeding to virtually universal insurance in somewhat easier and less authoritarian steps. The characteristics of these laws have been described by Mr. VanderFeen in these *Proceedings*.² Since that paper was presented, such legislation has been extended to many other states and the more stringent provisions that characterized the New Hampshire law at the time his paper was written have become fairly widespread in application. Assigned risk plans have been introduced in many states as a further aid in the solution of problems that might otherwise give rise to agitation for compulsory insurance. There are limited areas of the automobile field, however, where compulsory insurance has been widely introduced, particularly for automobile common carriers. Only this spring the principle was applied in a new area with the signing in New York State of a law requiring every registered car owner under twenty-one years of age to carry liability insurance.³

OTHER CASUALTY LINES

The earliest regulation providing for rate approval in casualty lines other than workmen's compensation insurance developed in the states

¹See in particular papers by C. W. Hobbs on "State Regulation of Insurance Rates" in Vols. XI and XXVIII. Both papers cover fire and other casualty lines as well.

²P.C.A.S. Vol. XXVIII, Part II.

³For detailed discussion of these problems see address by Superintendent A. L. Bohlinger, "Which Road for the Uninsured Motorist," before New York Association of Insurance Agents at Syracuse on May 7, 1951.

of Oklahoma and Washington. In Oklahoma under a law passed in 1915 carriers started filing rates on employers' liability, automobile liability and glass insurance in 1916. Around 1920 such filings were extended to include general liability lines but that practice was apparently discontinued in 1922. The law was inconclusive in language as respects casualty lines except in its application to employers' liability and glass insurance, and has been enforced with considerable variation in requirements through the years, no deviations from established schedules in the automobile liability and glass lines being permitted during several periods.

In Washington, the initial filings on other lines were also made about 1916 and in 1918 the commissioner issued an order prohibiting the application of experience rating plans to Washington risks, an order that was enforced down to the date of the post-S.E.U.A. legislation. Rate approval provisions were enforced from 1916 on.

New York had for many years a law in effect regulating the activities of rating organizations and providing for their examination, but not subjecting their ratemaking to approval requirements. In 1922 a law was enacted establishing control over rates on a "subsequent disapproval" basis, except that rates for certain minor coverages required prior approval. Gradually, for all lines a transition was effected in practice to a prior approval status because of the Superintendent's authority to have rates withdrawn after promulgation. This transition began early with automobile liability insurance, and was virtually complete in the casualty field by 1932, with rates being based thenceforth for casualty lines upon the experience of all carriers in the state. This characteristic, it should be emphasized, has been a development by departmental ruling, not by legislative enactment. Until the past year or two, every carrier writing these coverages was persuaded by the Insurance Department to become a member of or subscriber to one of the two rating organizations operating in the field of such coverages; the two organizations exchanged experience and worked out a common set of rates prior to submission to the Insurance Department. Only recently has there been an indication on the part of the Department that the manual rates filed by rating organizations might be based upon less than the total experience, although individual company deviations have been permitted through the years on one ground or another.

The next state to establish effective control over a casualty line other than workmen's compensation was Texas where in 1927 legislation was passed establishing an administrative automobile rating bureau to which all writers in the state were required to belong and placing in the hands of the Board of Commissioners the power to fix rates. New Hampshire assumed approval powers over automobile liability rates in 1929, Virginia in 1932 and North Carolina in 1933, with statutory administrative bureaus being established in both Virginia and North Carolina, the North Carolina Bureau also having rate-making authority subject to approval by the commissioner. In New Hampshire the national rating organizations cooperated in the preparation of rate submissions so that the effect was virtually the same as

in the states having statutory bureaus. Deviations in these states were permitted but not encouraged and were for the most part granted on the basis of proven expense cost differentials.

Louisiana in 1936 passed a law creating a Casualty and Surety Commission which had (and still has even under the new code which includes much of the "Model Bill" phraseology in other respects) sole power to establish rates. In practice the operation was much the same as in New York state with stock and mutual organizations cooperating in the preparation of a rate submission which was then discussed with the Commission. No organization or company, however, had the privilege of making a formal filing. Deviations were not permitted except upon an individual risk submission basis.

Such regulation as existed prior to the S.E.U.A. decision was of a very rigid character in those states exercising powers of approval or disapproval of rates. There were a number of other states where rate filings were required and where adherence to filed schedules was emphasized, but where powers of approval and disapproval were not exercised or were not effective.

II. POST-S.E.U.A. LEGISLATION

"Misery acquaints a man with strange bedfellows."
—William Shakespeare

The story of the development of post-S.E.U.A. legislation has been covered in Mr. Donovan's paper in detail as respects federal action, and in a more general way as respects action on the state level. As of April 1, 1951 regulatory legislation had been made effective in all states, and in the District of Columbia, Alaska, Hawaii, and Puerto Rico. Most of the individual state regulatory laws follow closely the so-called Model Bill drafted by an All-Industry Committee composed of designated representatives of nineteen national insurance organizations.⁴ This Committee worked in close cooperation with the Commissioners' Committee on Rates and Rating Organizations and a final draft of a model bill was approved and adopted by the All-Industry Committee and by the National Association of Insurance Commissioners in June, 1946. A summary will be made here of those provisions of the bill which are particularly pertinent to actuarial problems. The legislation is applicable, in general, to all casualty lines,

American Institute of Marine Underwriters
American Mutual Alliance
American Life Convention
American Reciprocal Association
Associated Factory Mutual Fire Ins. Co.
Association of Casualty and Surety Executives
Bureau of Personal Accident and Health Underwriters
Health & Accident Underwriters Conference
Insurance Executives Association

Inland Marine Underwriters Association
Life Insurance Association of America
National Association of Casualty and Surety Agents
Nat'l Association of Independent Insurers
Nat'l Association of Insurance Agents
Nat'l Association of Insurance Brokers
Nat'l Association of Mutual Insurance Agents
Nat'l Board of Fire Underwriters
Nat'l Fraternal Congress of America
Surety Association of America

although workmen's compensation continues to be regulated in a large number of states under the laws that were previously applicable to that line.

A more detailed analysis of the rating laws, state by state, as respects those provisions which particularly affect the work of the actuary is set forth in Appendix A. Analysis of the special regulatory laws relating to workmen's compensation insurance is not included. For such, reference may be made to the paper by C. W. Hobbs in P.C.A.S. Vol. XXVIII previously cited. In making the current analysis, the All-Industry Committee's Model Bill of June, 1946, with the 1947 amendments, is taken as the norm and departures from that bill noted state by state. Phraseology in the Model Bill of each of the clauses in question will be quoted and briefly discussed in this section.

In thirteen jurisdictions the statute has been written to include fire and casualty coverages,⁵ and in some instances the provisions which are ordinarily peculiar to each field are confused, with an occasional hodge-podge effect. In one instance, District of Columbia, the statute includes inland marine in addition to casualty lines but does not in general include other forms of property insurance written by fire carriers.

There are special statutes on automobile liability effective in Massachusetts (statutory bodily injury coverage), New Hampshire, North Carolina and Texas, all of which date back to the pre-S.E.U.A. era. It should be noted that in Virginia, though the new law includes automobile liability and thus supersedes the old law relating to such insurance, the previously effective provision for compulsory membership in the statutory bureau for such insurance is written into the new law. The automobile physical damage coverages are in general included under the laws regulating casualty lines.

As respects workmen's compensation insurance, there are seven monopolistic, or virtually monopolistic, state funds,⁶ although Ohio specifically includes workmen's compensation under its new law. Workmen's compensation is specifically excepted in the new law and regulated under separate statute (continued from pre-S.E.U.A. days) in twelve states.⁷ In addition, in Georgia, the old workmen's compensation statute still applies, except that rating organizations licensed under the new act can make filings. A similar provision applies in Maine, and all parts of the new law not inconsistent with the old workmen's compensation law also apply to workmen's compensation insurance. In Arizona there is confusion which does not arise from legislative sources: the Industrial Commission and the Corporation Commission insist the old law is still effective, although the wording of the new law is such as to make its application to workmen's compensation insurance apparently unquestionable. In Utah the new law applies, but a new chapter was added in 1948 stating that all companies writing workmen's compensation insurance "shall be subject to the rules and

⁵Alaska, Calif., Del., La., Mont., Nev., N. H., N. J., N. Y., P. R., Utah, Vt., Wash.

⁶Nev., N. D., Ohio, Ore., Wash., W. Va., Wyo.

⁷Calif., Colo., Ind., Mass., Minn., Mo., N. H., N. J., N. C., Pa., Tex., Wis.

regulations of the Industrial Commission," which "may provide uniform rates to be charged by such companies."

Aircraft liability is covered completely or partially only in California, Montana, New Jersey, New York and Puerto Rico. Accident and health is excepted in all jurisdictions except Idaho (with "disability" phraseology in the California, Oregon, Utah and Washington exceptions). Reinsurance is excepted in all jurisdictions except District of Columbia and Vermont; but joint underwriting or joint reinsurance is included in all but eight of the other jurisdictions.⁸ Credit insurance is excepted now only in Mississippi and North Carolina, title insurance in 21 jurisdictions.⁹ There are many other minor exceptions which need not be summarized here. The foregoing is sufficient to give a general idea of the scope of the laws as respects kinds of insurance and to foreshadow the confusion besetting those responsible for filings.

A special prefatory comment is needed for the Idaho law, made effective only this spring, under which the various provisions noted below and in the Appendix become applicable only if the Commissioner, in 1953, or upon review to be made biennially thereafter, finds that reasonable competition does not exist as respects certain classes, whereupon the provisions are invoked as respects such classes until such time as he determines that competition has been restored in that area of insurance.

(a) BASIC CRITERIA FOR RATES

"Rates shall not be excessive, inadequate or unfairly discriminatory."

This phraseology is incorporated in most of the laws although in some it is shifted to an affirmative rather than a negative statement, and occasionally the words "just" and "reasonable" are used either with or as a substitute for certain of the words in the Model Bill phrasing.

In a few of the state laws (see Appendix A) definitions of one or another of the terms in the quoted clause are given. In the definitions of "excessive" it is usually specified that if a reasonable degree of competition exists with respect to the given classification and area no rate shall be held to be excessive. As respects the word "inadequate" such definitions as there are in the laws commonly indicate that no rate shall be held to be inadequate if the business being written at that rate is written at a profit, although some of the laws also refer to the solvency of the insurer or to the creation of a monopoly. In Rhode Island a rate is held to be not unfairly discriminatory if "used in good faith to meet an equally low or lower net cost to the insured of a competitor," and in five other states there is particular reference to the "unfairly discriminatory" clause to legalize establishment of classes of risks on the basis of any "reasonable consideration" pro-

⁸The eight exceptions are: Ala., Fla., Ind., Kan., Miss., N. H., N. C., P. R.

⁹From "Chart Analysis of the Casualty and Surety Rate Regulatory Laws" published by the Association of Casualty and Surety Companies.

vided that they apply "to all risks under the same or substantially similar circumstances or conditions."

It would appear that it is not possible to apply the three criteria specified in the Model Bill phraseology separately but that they must rather be considered together. The word "reasonable," it has been noted, occurs in several of the laws and also in certain of the legislated definitions of "excessive" and "inadequate." Mr. Moser in an article in the recent Duke University symposium on the regulatory laws,¹⁰ speaks of a "zone of reasonableness" as being recognized under insurance as well as under other types of rate regulation. It is clear that statistical evidence alone and uninterpreted is not sufficient because there are countless instances where the experience is so sparse as to be meaningless if taken at its face value. It is the casualty actuary's task in interpreting the statistical and other pertinent evidence to develop rates proper for the period of their application, which fall within a "zone of reasonableness" that will stand the test of probing criticism in satisfying jointly the criteria that a rate shall not be excessive, inadequate or unfairly discriminatory. These criteria, even considered jointly, are comparatively subjective in character, not being determinable in unassailably objective terms.

This point is one of the most difficult to comprehend if one is a layman to actuarial science, as many supervisory officials are. The layman, and it must be admitted also a few individuals who are not completely such, feels that it should be possible to pour figures into a hopper and, after processing them through a series of rolls and presses, have a finished incontrovertible or, as they prefer to call it, "actuarially exact" result come out of the other end of the machine, just as a newspaper is automatically processed today. More will be said to this point later but the primary fallacy, of course, lies in the phrase "actuarial exactness" because there can be no such creature. "Actuarially proper" is more nearly correct. There are only relative degrees of "exactness" in the determination of insurance rates.¹¹

(b) BASIS OF RATES

"Due consideration shall be given to past and prospective loss experience within and outside this state, to catastrophe hazards, if any, to a reasonable margin for underwriting profit and contingencies, to dividends, savings or unabsorbed premium deposits allowed or returned by insurers to their policyholders, members or subscribers, to past and prospective expenses both countrywide and those specially applicable to this state, and to all other relevant factors within and outside this state."

These provisions are fairly uniform, although a few states add references to "physical hazards," to "safety and loss prevention factors," to "underwriting practice and judgment," and a few odds and ends of considerations.

The most controversial point involved here is probably the question

¹⁰Vol. 15, No. 4 of "Law and Contemporary Problems," pp. 523 ff.

¹¹See further discussion in Sections IV and V of this paper.

of profit. The word "underwriting" is omitted in the Florida, Kansas, Mississippi, Tennessee and Texas laws, and the word "reasonable" without "underwriting" is used in Alabama, New Jersey, New York and Puerto Rico laws.

(c) EXPENSE PROVISIONS

"The systems of expense provisions included in the rates for use by any insurer or group of insurers may differ from those of other insurers or groups of insurers to reflect the requirements of the operating methods of any such insurer or group with respect to any kind of insurance, or with respect to any subdivision or combination thereof for which subdivision or combination separate expense provisions are applicable."

There are a few variations in this phraseology noted in the Appendix, and such a provision is entirely omitted from the laws of the District of Columbia, North Carolina, Texas and Vermont, and from the Massachusetts and New Hampshire laws relating to automobile liability.

The reason for the reference in this phraseology to subdivisions of a kind of insurance may be illustrated by reference to automobile liability where there are variations in the audit expense provisions for garages, in the production cost provisions for public automobiles, and in all of the expense provisions for long haul truckmen.

(d) CLASSIFICATIONS AND RATING PLANS

"Risks may be grouped by classifications for the establishment of rates and minimum premiums. Classification rates may be modified to produce rates for individual risks in accordance with rating plans which establish standards for measuring variations in hazards or expense provisions, or both. Such standards may measure any differences among risks that can be demonstrated to have a probable effect upon losses or expenses."

Although this phraseology would appear to be sufficiently clear to stand on its own feet, its application has become one of the most debated topics rising out of the rate regulatory laws. Since the fifth section of this paper is devoted entirely to individual risk rating plans, further discussion will be postponed to that section.

(e) RATE FILINGS

A number of requirements are grouped here for convenience in consideration.

1. "Every insurer shall file with the commissioner every manual of classifications, rules and rates, every rating plan and every modification of any of the foregoing which it proposes to use. Every such filing shall state the proposed effective date thereof, and shall indicate the character and extent of the coverage contemplated. . . . A filing and any supporting information shall be

- open to public inspection after the filing becomes effective.”
2. Filings may be made by a rating organization on behalf of a member or a subscriber.
 3. “The Commissioner shall review filings as soon as reasonably possible after they have been made in order to determine whether they meet the requirements of this Act.” Subject to the exception specified in (6) below the commissioner has a waiting period of 15 days in which to consider the filing, which period may be extended by him for an additional period not to exceed 15 days upon proper notice to the filer. A filing is deemed approved unless disapproved by the commissioner within the waiting period or any extension thereof. This is the so-called “deemer” provision.
 4. “. . . the commissioner may, by written order, suspend or modify the requirement of filing as to any kind of insurance, subdivision or combination thereof, or as to classes of risks, the rates for which cannot practicably be filed before they are used.”
 5. “Upon the written application of the insured, stating his reasons therefor, filed with and approved by the commissioner, a rate in excess of that provided by a filing otherwise applicable may be used on any specific risk.”
 6. “Any special filing with respect to a surety or guaranty bond required by law or by court or executive order or by order, rule or regulation of a public body, not covered by a previous filing, shall become effective when filed. . . .”

The filing and supporting information (see (f) below) are not open to public inspection until after the filing becomes effective. This provision, of course, protects the right of the filer to the privacy of its intentions until the filing becomes effective.

It will be noted by reference to the summary in Appendix A that in Montana only rating organizations are required specifically in the legislation to make filings, that in California and Missouri no filings are required under the law, and that in Idaho no filings are required under the law unless the commissioner upon review and hearing in 1953, or upon review biennially thereafter, shall determine that reasonable competition does not exist with respect to certain classes. In Louisiana rates are made by the Commission, no provision being made for the submission of filings; in practice, the carriers often initiate discussion of rate revisions, but make no formal filing.

As respects the waiting period, it will be noted by reference to the table in Appendix A that there are a number of states with no waiting period provision, three states with double the normal waiting period (Pennsylvania, South Carolina and Texas) and one with 20 + 20 days (Colorado), and that in a limited number of states prior approval is required. The rating organizations, chiefly by reason of the very great volume of printed material involved in their manual reprints, customarily treat all states as though prior approval were the rule, with due regard to the “deemer” provisions in the laws.

The carriers are faced with serious difficulties in the extremely varied interpretations in different states of identical filing provisions. It has become necessary for the independent filing companies, as well as the rating organizations, to maintain an expert on filings who has at his fingertips all of these vagaries of interpretation.

Provision (4) was included to permit flexibility in the handling of filings on certain coverages for which the application of the normal filing rules would prove completely impractical. It should be emphasized, however, that all such exceptions to the normal filing rules are subject to review, question and hearing on the part of the commissioner.

The fifth provision is included to permit flexibility in the handling of risks that might otherwise find the market so restricted that they could not obtain insurance readily.

The sixth provision relating to certain surety and guaranty bonds is likewise included for reasons of practicability and such rates are subject to the same review by the commissioner as all other rates. Three states provide for similar latitude in the handling of certain other filings, as noted in the Appendix.

(f) SUPPORTING INFORMATION

"The information furnished in support of a filing may include (1) the experience or judgment of the insurer or rating organization making the filing, (2) its interpretation of any statistical data it relies upon, (3) the experience of other insurers or rating organizations, or (4) any other relevant factors."

The foregoing phraseology is part of what came to be known as the Moser Amendment which was added to the Model Bill in January, 1947 by the All-Industry Committee, and is included in the section from which (e)-1 above is quoted. The original draft provided for the submission of supporting information with the initial filing. The amended draft permits a filing to be made without supporting information but gives the commissioner power to call for any supporting information he deems necessary, and establishes the inception of the waiting period from the date such information is received. The entire amendment states that when a filing is not accompanied by the supporting information the commissioner may request such, and in that event the waiting period shall commence as of the date such information is furnished, and the amendment then goes on to specify what that information may include.

This amendment has not been adopted in seventeen jurisdictions.¹² The second specification (interpretation of statistical data) was omitted from the legislation but the other specifications were included in eight jurisdictions.¹³ Such supporting information is required to be submitted in Puerto Rico and West Virginia. In Wyoming such sup-

¹²Ala. Calif., D. C., Fla., Kan., La., Mass. (Stat. Auto.), Miss., Mo., N. H., N. J., N. C., Okla., Tenn., Tex., Vt., Va. The original draft provision for the submission of supporting information with the original filing is included in Fla., Kan., Miss., Tenn., and Texas (Other Cas.).

¹³Alaska, Ark., Ind., Me., Mass. (Other Cas.), Ohio, Pa., Wash.

porting information may be required only at a hearing and shall be open to public inspection upon the conclusion of the hearing.

This amendment was urged initially by a group of independent writers to clarify what Mr. Moser has characterized as the "legislative command . . . for flexible administration that will not stifle competition by making it cheaper and easier to conform than to compete."¹⁴ Although the clause quoted under (b) above closes with a reference "to all other relevant factors within and outside this state" this amendment apparently seemed desirable to the independent carriers in order to re-emphasize that reference and also in order to throw the burden for determining when supporting information is necessary upon the supervisory official rather than upon the filing carrier. With an adequately staffed Insurance Department this is within the realm of possibility, but there are very few Departments the appropriations for which provide a staff that will be well qualified to make such a determination.

There have been many representations by independent filers that mere reference to a filing by a rating bureau should suffice by way of supporting information for any filing of rates that are not above those set forth in the rating bureau's submission. The logic of this argument is easier to follow in a state where a rating bureau represents carriers writing a major portion of the premiums for the line in question than in a state where it represents a small minority of the writings and where it may, in fact, represent a smaller proportion than the writings of a single independent carrier that is predicated its filing thus upon the submission of the rating bureau.

Certainly no cut and dried generalization should prevail in any event. This matter of the adequacy of supporting information probably constitutes the most difficult single problem of the supervisory official. Wherever I have gone throughout the country, this is the one problem the supervisory official always wishes to discuss. No one has yet produced a satisfactory pattern. Possibly none such can be produced. Certainly the carriers should be forbearing in their approach to the Insurance Departments, and the industry as a whole will be benefited by the practice of submitting information in excess rather than in deficiency. The rating organizations, it may be added, have followed consistently a procedure of submitting what they consider to be complete supporting information with each filing, not falling back upon the loop-hole afforded by the Moser Amendment to lay the burden of determining when such information shall be needed upon the shoulders of the Insurance Department officials.

(g) DISAPPROVAL

Provisions are included for a review of any filing by the commissioner subsequent to its becoming effective, and for the holding of hearings and the promulgation of disapprovals if he finds that a filing does not meet the requirements of the law. These provisions are of

¹⁴Op. cit.

interest particularly from the legal angle and there is no need to summarize them in detail in this paper.

(h) RATING ORGANIZATIONS

Specific provisions are included relating to the licensing and regulation of rating organizations. As noted already under (e), rate filings may be made by rating organizations on behalf of their members and subscribers where filings are required. Cooperation among rating organizations or among rating organizations and insurers is permitted in rate making and in other matters within the scope of the Act. These provisions thus put into effect the mandate implied in the Congressional action embodied in Public Law 15, setting aside the application of the federal anti-trust regulations to such cooperation among insurers in the establishment of rates. While such provisions are omitted in a few states, there are other provisions carrying the same implication. These provisions have not been reviewed in detail in the Appendix.

Subject to reasonable rules, any rating organization must permit any insurer to subscribe to its rating services. Such subscription specifies the kind of insurance and the state. Prior to the S.E.U.A. decision it was customary for the rating organizations to insist upon country-wide adherence to their manuals by member carriers, and the subscriber principle was effective only in New York State, with one or two minor exceptions.

(i) DEVIATIONS

Any member of or subscriber to a rating organization "may make written application to the Commissioner for permission to file a uniform percentage decrease or increase to be applied to the premiums produced by the rating system so filed for a kind of insurance, or for a class of insurance which is found by the Commissioner to be a proper rating unit for the application of such uniform percentage decrease or increase, or for a subdivision of a kind of insurance (1) comprised of a group of manual classifications which is treated as a separate unit for rate making purposes, or (2) for which separate expense provisions are included in the filings of the rating organization." A copy of the application and supporting data must also be furnished to the rating organization. Ten-day notice of a hearing is given but the rating organization may waive the hearing. Except for the ten-day hearing notice, no waiting period is customary. The criteria established for the other rate filings (see (a) above) are usually applicable to deviation filings as well. A deviation is ordinarily granted for a one-year period, but in a number of states there is no such limitation. A summary of the variations in these provisions is set forth in Appendix A.

These provisions steer a middle course between the Scylla of an extreme flexibility which would make the operations of a rating organization meaningless, and the Charybdis of insistence upon a uniformity which would act in the direction of stifling competition.

(j) ADVISORY ORGANIZATIONS

Specific provisions are included relating to advisory organizations which assist filers "by the collection and furnishing of loss or expense statistics, or by the submission of recommendations," but which do not make filings directly. The use by any filer of statistics or rate making recommendations furnished by an advisory organization not complying with the statutory provisions is prohibited. No mention of such organizations is made in the laws of Alabama, Kansas, Massachusetts (Statutory Automobile), Mississippi, New Hampshire (Automobile Liability), North Carolina and Vermont.

(k) EXCHANGE OF INFORMATION

1. "Reasonable rules and plans may be promulgated by the commissioner for the interchange of data necessary for the application of rating plans."

2. "In order to further uniform administration of rate regulatory laws, the commissioner and every insurer and rating organization may exchange information and experience data with insurance supervisory officials, insurers and rating organizations in other states and may consult with them with respect to rate making and the application of rating systems."

These provisions are not applicable in the District of Columbia, Mississippi, Montana, New Jersey, North Carolina, Oklahoma and Vermont, and are modified in a number of other states. (See Appendix A)

(l) RECORDING AND REPORTING OF LOSS AND EXPENSE EXPERIENCE

"The Commissioner shall promulgate reasonable rules and statistical plans, reasonably adapted to each of the rating systems on file with him, which may be modified from time to time and which shall be used thereafter by each insurer in the recording and reporting of its loss and countrywide expense experience, in order that the experience of all insurers may be made available at least annually in such form and detail as may be necessary to aid him in determining whether rating systems comply with the standards set forth in Section———. Such rules and plans may also provide for the recording and reporting of expense experience items which are specially applicable to this state and are not susceptible of determination by a prorating of countrywide expense experience. In promulgating such rules and plans, the commissioner shall give due consideration to the rating systems on file with him and, in order that such rules and plans may be as uniform as is practicable among the several states, to the rules and to the form of the plans used for such rating systems in other states. No insurer shall be required to record or report its loss experience on a classification basis that is inconsistent with the rating system filed by it. The commissioner may designate one or more rating organizations or other agencies to assist him in gathering such experience and making compilations thereof, and such compilations shall be made

available, subject to reasonable rules promulgated by the commissioner, to insurers and rating organizations."

No provisions for the recording or reporting of statistics are included in the Missouri, Montana or Oklahoma laws. A few of the laws require biennial rather than annual statistics.

The individual state exceptions are noted in Appendix A but detailed discussion of the impact of this particular section is deferred to the following section which deals with statistical plans.

* * * * *

As respects the aggregate of the various provisions that have been extracted for discussion in this section, only a quick glance at the tables in the Appendix will suffice to indicate the confusing lack of consistency and uniformity among the states and the maze of legalistic wanderings and by-paths that must be threaded by those who must operate under these laws, despite the fact that most of them were constructed upon the same basic framework.

III. STATISTICAL PLANS

"In this very log we sit upon, Mrs. Sampson,' says I, 'is statistics more wonderful than any poem. The rings show it was sixty years old. At the depth of two thousand feet it would become coal in three thousand years. A box four feet long, three feet wide, and two feet eight inches deep will hold a ton of coal. . .'

"Go on, Mr. Pratt,' says Mrs. Sampson. 'Them ideas is so original and soothing. I think statistics are just as lovely as they can be!'"

—O. Henry

The subjection of workmen's compensation insurance to widespread regulation from its inception was responsible for the establishment in that field of universal reporting of statistics in accordance with a standard statistical plan. That plan at first provided only for the reporting of data statewide by classification, but with the advent of the loss and expense constant refinements in the ratemaking procedure a transition to a unit report system was gradually effected.

The rating organization established plans for the other lines in order to provide a common basis for the reporting of statistics by their members. As regulation entered these fields, the plans were expanded to meet the requirements imposed in the few regulated states, but such expansion was as a rule made effective countrywide in the interest of simplicity. In those few jurisdictions where effective rate regulation existed adherence to the statistical plans was required of virtually all carriers. The few minor exceptions need not concern us here. Elsewhere the independent carriers, with but few exceptions, did not main-

tain statistics that could have served for or contributed to manual rate determination. Consequently when the rate regulatory laws were enacted the most extensive impact upon the internal company procedures of the independent carriers lay within this area of operation.

REPORTED STATISTICS VS. SUPPORTING INFORMATION

There has from the outset existed a deal of controversy regarding the interpretation of the regulatory provisions relating to statistics. The argument has been made vigorously by certain of the independent carriers that the section relating to statistical plans does not require that the information reported under such plans should be in the detail sufficient for manual rate making purposes but rather that each filer is responsible only under the rate filing provisions for providing such information, in supporting the filings. Certain other independent carriers have gone so far as to argue that statistics in complete detail for rate making purposes should be required of rating organizations but not of other filers except in direct support of rate filings. At one early meeting attended by representatives of all segments of the industry, this argument was carried to the point of insistence that independent filers need record and submit no more than aggregate loss ratio data whereas all members of rating organizations should be required to submit information in the classification and territorial detail established in the manuals.

These controversies are, of course, founded upon a basic difference in the interpretation of the regulatory statute in its entirety. The adherence to the principle of differentiation between the statistical requirements laid upon members of rating organizations and those laid upon independent filers proceeds upon the philosophy that since the primary purpose of regulation is to establish a sufficient degree of control over the rate making activities of carriers acting in concert as to meet the requirements of Public Law 15 for the voiding of the application of the federal anti-trust statutes, regulation should be rigid in its application to rating organizations, and as negligible as possible in its application to independent filers.

Such a double standard has apparently been written into one law (Montana), though the interpretation of that law is debatable. The idea of a double standard is basically unsound, because if pushed to an extreme it would void that objective of the regulatory laws which would permit establishment of rates upon a broad spread of experience; for if requirements were laid upon carriers acting in concert that are much more burdensome than those laid upon independent carriers, the point could be reached where the carriers acting in concert would have to discontinue such activities and act as independent carriers in the interests of self-preservation. Such a move would very probably be viewed with utter consternation by the major portion of the independent carriers in the country because they are at present, to use the phrase that their own spokesmen have used on occasion, riding on the coat-tails of the rating organizations, and if those coat-

tails should become unravelled the resulting chaos might well be disastrous for many of the smaller carriers.

Part of the difficulty lies in the fact that any carrier not previously affiliated with a rating organization can put itself in a position overnight to use the manuals of a rating organization by subscribing to its services. The argument is made therefore that any carrier should be permitted to do as an independent, in using a bureau's filing as complete justification for its own rates, what it could do upon merely subscribing to the bureau's services. This argument overlooks the fact that a carrier, in subscribing to a bureau's services, commits itself to certain obligations, one of which is to contribute in the future to the bureau's statistics in exactly the same degree as members of that organization.

The germ of the argument on statistics of course lies in the words (see II-(l) above): "... in such form and detail as may be necessary to aid" the commissioner "in determining whether the rating systems comply with the standards set forth in" the law. Until greater progress is made in determining what constitutes a proper test of compliance of rating systems with the provisions of the regulatory laws, the argument on statistics will of necessity be correspondingly indeterminate.

There are many areas of sparse statistics where the supervisory officials may consider that it is essential to obtain detailed information from all carriers. Yet the information will be of little use unless it is combinable. And it is in those areas particularly that carriers are farthest apart today in the detail they are reporting.

In reviewing what has happened, one cannot resist the thought that some of the argument in this regard, as on other aspects of the impact of the regulatory laws, has been made largely as a matter of principle, by way of highlighting a policy of non-uniformity or non-conformity as such, rather than as a matter of deep-seated adherence to the details of such unforming practices. Another illustration of emphasis as a matter of principle will be seen in the next section, in our discussion of judgment and flexibility in ratemaking.

POST-WAR PLANS

Effective January 1, 1946, the national rating organizations in the field (other than on workmen's compensation and boiler and machinery, for which reporting standards were not relaxed during the war) reinstated statistical plans which had been virtually suspended during the war. In their reinstated form these plans provided substantially the same detail as the corresponding plans that had been in effect prior to the war, namely, loss data by classification and territory. The plans in some respects (for example in the reporting of commercial car experience by trade classification) went somewhat beyond the classification detail spelled out in the manuals in order to provide information for analysis and reallocation of operations within the classification system. This seemed important at the time in view of the long war-time lapse in the reporting of detailed statistics.

At the same time an effort was made to anticipate forthcoming rate regulatory legislation, in view of the S.E.U.A. decision by providing in those statistical plans for the assignment of special codes for classifications, territories or coverages that were not in accordance with the rating organizations' manuals upon which the statistical plans were based, and thus in effect adapting those plans for use by any carrier however independent its operations might be.

Furthermore, certain rating organizations differentiated sharply between their other statistical activities and the work of the statistical division in the collection and tabulation of statistics for reporting to the supervisory officials under the regulatory laws, i.e., differentiated between their functioning as a statistical agent and their functioning as a rating organization.

Shortly thereafter, the National Association of Independent Insurers developed a separate set of statistical plans which went far beyond the early statements of objectives made by representatives of the independent carriers but which still fell short of providing the detail called for by the plans of the rating organizations. By way of elaborating upon this statement let me say that it is clear why these plans omit analytic detail beyond that established in the manuals on which they are based. As respects the further restriction of detail as, for example, in the grouping of many manufacturers' and contractors' liability classifications carrying different rates, a good case can be made out for such restrictions only if provision is made for periodic analysis of the detail thus omitted. Such provision has not been made, to my knowledge, by the carriers using those plans. It must be granted, however, that there are some instances in manual classifications in which the collection of detailed statistics countrywide over a period of many years will fail to produce an interpretable volume. Where the line should be drawn thus becomes a matter of judgment at the best.

In some respects the N.A.I.I. plans (as I shall refer to the plans published by the National Association of Independent Insurers) specify inclusions that can be fully appreciated only if one knows something of the background of persuasion that was necessary for their adoption, but they are juxtaposed to gaps that would appear designed to preclude the use of the statistics reported to the statistical agencies for ratemaking purposes. This characteristic thus bears out the argument that has been mentioned already to the effect that the section relating to statistical plans does not require that the information reported under such plans should be in the detail necessary for manual ratemaking purposes.

In extenuation of some of the gaps, the supporters of the National Association of Independent Insurers statistical plans argue that it is necessary to creep before one can walk. Their plans are used by a large number of small carriers who, prior to the introduction of rate regulation, maintained no statistics whatever other than for annual statement purposes. The impact of regulation has unquestionably posed very difficult problems for that group of carriers, and if the N.A.I.I. plans are to be considered as an interim development in their present

form they will have served that expedient purpose admirably. Anyone who is familiar with the problems in the offices of many of those smaller carriers must, in fact, take his hat off to the individuals who succeeded in getting them voluntarily to accept even the provisions of those statistical plans.

No commentary on this subject would be complete without mentioning an outstanding advantage of the N.A.I.I. plan for automobile statistics, namely, the fact that it constitutes a unified plan for the recording and reporting of statistics on automobile liability and physical damage coverages. The rating organization administration of these lines is divided between two groups because of the old demarcation between so-called "casualty" lines and "fire" lines. These organizations are, however, currently cooperating in ironing out differences, particularly in territorial definitions and coding, so as to simplify the statistical problems created by this separation of administrations.

In most of the states the promulgation of the various statistical plans was effected by a letter addressed to all carriers by the Commissioner of Insurance (1) listing the various plans that he was approving for use in the state, (2) indicating that in the case of rating organizations their plans were to be used by members of or subscribers to the organizations, and (3) granting to other carriers the option of selecting any plan for use that they might desire. In a few states the third of these points was omitted so that no plan is officially effective in such states for other than companies affiliated with rating organizations or with an advisory organization.

As respects the broad principles governing the reporting of statistics, there is no need to review in this paper such elementary concepts as policy year and calendar year reporting, or accident year reporting of loss statistics; the same is true as respects paid and incurred losses, written and earned premiums.

ALLOCATED CLAIM EXPENSES

It is pertinent to review briefly one controversy relating to the statistical plans which literally shook the industry to a degree far beyond the relative importance of the item involved, namely the celebrated allocated claim expense controversy. In the casualty field from time immemorial, allocated claim expenses have been reported with losses so as to lay the burden of any unduly high allocated claim expense upon the territory or classification developing such, and conversely to accord to any classification or territory the benefits accruing from conditions giving rise to unusually low allocated claim expense. Prior to rate regulation the carriers were left considerable latitude in the separation of expenses of claim investigation and adjustment into allocated and unallocated portions. With the advent of regulation it was thought that, in order to avoid criticism of manual rate making processes and experience rating procedures, a maximum reasonable degree of uniformity should be introduced in defining allocated claim expenses. Accordingly the rating organizations promulgated a definition which restricted allocated claim expenses essentially to expenses of investi-

gating and adjusting claims in suit. Unfortunately the far-reaching consequences of this action were not successfully anticipated and the reverberations that ensued did not abate for a couple of years. It was necessary to establish an All-Industry Committee on the subject which held several meetings. This All-Industry Committee represented the automobile physical damage writers as well as the organized and so-called "unorganized" stock and non-stock casualty writers. It was not possible to effect a reconciliation of all the conflicting views in the form of a single definition, but the course of action embodied in the formal resolution adopted by the Committee and in the subsequent discussion on the implementing of that resolution may in time well become the guide for the treatment of allocated claim expenses in ratemaking procedures and is of sufficient importance therefore to recite here.

In a formal resolution the Committee recommended that recognition be given to "the need for flexibility in the elements of claim expense to be reported with losses for ratemaking purposes." The resolution then continued as follows:

"This recommendation is supported by the following reasons:

1. Because it will reflect the variations in the operating methods of the different groups of insurers.
2. Because it will reflect the practical differences and usages of the individual lines of insurance.
3. Because essential flexibility is incorporated in the statistical plans approved by insurance authorities of most states which, we believe, is in conformity with the spirit of Public Law 15.

The fact that one approved statistical plan provides for the inclusion with losses of certain elements of claim expense which are excluded under another approved statistical plan covering the same line of insurance would not, in our opinion, preclude the merging of the consolidated figures filed under these respective plans."

In the discussion on methods of merging data filed under the various definitions, it was agreed that the most reasonable solution would be to extend the reported losses and allocated claim expenses by a factor (for each company or each group of companies using the same definition) to include unallocated claim expenses as well, so as to produce losses plus total claim expenses. The results of all carriers would be comparable to this extent, regardless of what definitions of allocated claim expenses were used, and there is the added advantage from the public relations standpoint of talking to a permissible loss ratio inclusive of total claim expenses.¹⁵

THE NEW YORK PLAN

A couple of years ago officials in the New York Insurance Department informally broached the idea of statistical plans being published by the Department, first to comply with the promulgation provision

¹⁵It may be noted that since this paper was presented, the National Bureau of Casualty Underwriters has adopted this procedure for all casualty lines under its jurisdiction.

in the law that had been satisfied in other states by a bulletin from the Commissioner specifying the plans and statistical agents approved for use by the Department, and secondly to differentiate clearly between the details of statistics that the Department viewed as necessary for effective regulation and the additional details desired by the rating organizations for analytic purposes. The rating organizations at once countered with the idea that the Department, if it were finally considered necessary to make any departure from the status quo, should prepare a plan embodying what the Department considered to be minimum details, which plan would be publicized by bulletin to the statistical agencies and any other interested parties; and that any plan which satisfied the minimum requirements so established by the Department should be approved regardless of what additional details it might embody.

The New York Department had never approved any of the plans of the National Association of Independent Insurers, and it was presumably pressure from that organization for approval of its plans that spurred the foregoing move.

A formal hearing was held early this year, and an automobile plan for all coverages, liability and physical damage, has been promulgated by the Department. The plan has been so drafted that virtually no change is necessary in the plans previously effective in the state in order to effect compliance. A call for experience each year will be prepared the details of which will have to be included in the calls issued by the statistical agencies, with the minimum details required by the Department earmarked for the benefit of carriers not members of or subscribers to the organizations issuing the calls.

Since the maintenance of statistics on a uniform basis countrywide is a matter of great importance to the carriers, and a source of substantial economies, it is to be hoped that the drafting of different plans by the various state departments, after the pattern so set by New York, does not become the rule. This lack of countrywide uniformity is the very shoe that is pinching the N.A.I.I. carriers today as a result of their failure to secure approval of their plans in certain states.

A NEW APPROACH

Effective January 1, 1951, the rating organizations introduced modifications in their statistical plans which reflect on their part a new approach to the entire problem of statistical reporting. These plans had initially included requirements for the reporting of information for analytical purposes involving detail beyond the classification detail spelled out in the manuals, and also for the reporting of detailed information on classifications developing very sparse experience. It must be emphasized that these requirements were included in the plans as re-introduced January 1, 1946 because there had been such a long war-time gap in statistical experience that it was felt the carriers should protect themselves against undue criticism from the supervisory officials under the new and forthcoming rate regulatory acts.

It was never anticipated that all such detail would be maintained indefinitely. By January 1, 1951, the organization carriers had recorded such detail for a five-year period. The plans were accordingly reviewed with the idea of determining what details were needed on a continuous basis and what details could be obtained in the future on a periodic (non-continuous) or sampling basis. Many items were dropped from the plan at that time and such information will in the future be obtained either by an interpolated short term call or by a sampling study or other special investigation. It may be found possible in the future to extend this devisive process to other areas of experience which are currently being reported in detail under the plans.

IV. MANUAL RATE-MAKING PROCEDURES

*"Little by little we subtract
Faith and Fallacy from Fact,
The Illusory from the True,
And starve upon the residue."*
—Samuel Hoffenstein

The manual rate making procedures in the workmen's compensation line have been adequately reported through the years in these *Proceedings*. Reference will be made to them in this paper only incidentally as certain points may be illuminated by illustration from the workmen's compensation field. This discussion will be confined almost entirely to those lines with which I am more intimately acquainted. Perhaps other fields, such as fidelity and surety and credit, will be covered either in discussion of this paper or in separate papers in due course.

LIABILITY LINES—TIME LAG IN POLICY YEAR STATISTICS

As already noted in the preceding section, the industry currently stands just about universally committed to the pure premium approach to manual rate determination, at least for the important classifications, in the liability lines. The statistics for these lines are reported on a policy year basis with exposures. Only for specified car experience on private and commercial automobiles has it been found expedient to collect incomplete policy year data, that is, policy year experience as of a date twelve months subsequent to the inception date of the policy year. With or without the incomplete policy year reporting, there arises a very serious problem in the utilization of policy year data by reason of the lag between the period covered by such data and the date of review. In order to cut down guess work as respects incurred but not reported losses, the statistical plans for the liability lines call for evaluation of the losses as of a date at least three months subsequent to the termination date of the experience period

being reported. This requirement, though important in increasing the accuracy of the data, adds, of course, to the lag in its use.

This problem of lag is greatly intensified by the fact that calendar year data available on an aggregate basis by line to the supervisory officials through the annual statement reportings are more nearly contemporaneous than any policy year data available at the time of such annual statement reports, and the apparent plausibility of such data obscures its uselessness for rate review purposes. The supervisory officials have continued to express impatience with the carriers over this question of lag in the policy year experience.

Many attempts have been made to develop a basis for maintaining liability experience which would close this gap but the advantages of the policy year basis for lines involving considerable detail by classification and territory and characterized by long delays in loss settlements on a wide scale are so great as compared with the advantages of any other basis thus far considered that the policy year basis still holds its prime position.

The technical committees of the National Bureau of Casualty Underwriters recently made a thorough-going investigation of this subject, ruling no scheme out of their field of study for any reasons of ostensible fantasy, and finally reported reaffirmation of reliance upon the policy year basis as the best yet developed.

The present tendency in the third-party lines is to try to close the gap in experience by the use of trend data derived from other sources. In the workmen's compensation field, calendar year loss ratios by state for all classifications combined have been utilized for a number of years to determine trend factors applicable to the rate level indications obtained from the policy year data.

The acuteness of this particular problem is probably more widely felt today than ever before because of the unprecedented upward trend in loss costs in the automobile liability field in 1950 and 1951. Back in 1947, a study was made which indicated that the impact upon insurance loss costs of an upward trend in cost of living was felt within six months in the property damage liability field but that there was a lag of about three years in its impact on bodily injury liability loss costs. While this study was repeated recently with results that were less conclusive, it is nevertheless a fact that the great increase in bodily injury loss costs experienced by carriers in 1950 followed by about three years the sharpest preceding increase in the cost of living, thus lending some weight to the conclusions from the former study. The reasons for this delay in impact lie in the slowness of the response of such contributing factors as hospital costs, medical fees, increase in the amount of damages sought for a given type of injury, just as the impact of a locomotive on a chain of cars has to be passed down the line so that there is quite a lag before it is felt at the end of the chain.

The rating organizations had previously been collecting average claim cost and claim frequency data countrywide, but they are only this year instituting a continuing program for the reporting of trend

data by state in the various liability lines. Initially calls were issued for incurred-earned loss ratios by state, for all automobile bodily injury liability and all automobile property damage liability separately. Such information, while very enlightening in the absence of anything better, is of course not beyond criticism, and studies are currently in progress to determine whether more reliable and more accurate supplementary information can be developed in the way of average claim costs and also claim frequencies based upon exposures. These latter requirements would necessitate breaking down the reports to separate audited from non-audited coverages and also some separation by type of car. It is possible that this can be effected without undue expenditure on the part of the carriers by modifying internal company procedures so that the exposure cards can be run at monthly or quarterly intervals instead of annually. In any event it would appear that the problem of collecting trend data is well on the road to solution.

As respects utilization of trend data the problem is even more difficult. The workmen's compensation developments referred to indicated that there are difficulties, since the formula has been modified a number of times. The premium volumes in the workmen's compensation line are on the average greater than the volumes reported to rating organizations for rate review in the automobile lines and far greater than in the general liability lines. The emergency rate revision program developed for the automobile lines this year had to be based upon loss ratio data. As claim frequency and average claim cost data become available they will be used as supplementary information. The earned loss ratios for the years 1947-1950 inclusive were obtained. These were adjusted to present rate level and further adjusted to determine the relationship between the indication for the average of calendar year 1950 and a loss ratio calculated for the calendar period most nearly approximating the period covered by the combined policy year loss data for 1948 complete and 1949 incomplete. The "current experience factors" so determined were in the smaller states subject to such extreme fluctuations that they were credibility-weighted with the countrywide indications, the weights approximating those used in the determination of earned factors. It should be noted that since the trend was increasing sharply upwards through 1950, as measured by 12-month running averages with quarterly termination dates, the factors so developed do not reflect the loss cost level as of the date of review and can only be considered as conservative (as all such factors in post-war rate revisions unfortunately have proved to be). This deficiency was overcome in part by superimposing a countrywide factor to adjust from the loss level of 1950 to the loss level of the first quarter of 1951, with due correction for seasonal elements in the first quarter data.

Corresponding procedures are being considered for the general liability lines. Only in the fixed exposure lines of owners', landlords' and tenants' and elevator liability in this field, however, has the problem of rate inadequacy become acute, and in these lines the rates fell so far behind the experience during the war that the carriers have not

considered in their previous post-war revisions that such factors would be practicable, so great have been the increases necessary without their reflection.

Before we leave this subject I should add that I hope someone, in the near future, who is connected with one of the carriers writing automobile policies on a six months basis will write a paper on rate making procedures under such a reporting basis. In times when the experience trends are sharp in either direction, there are obvious advantages in such a basis which in itself cuts down the gap between the experience period and the date of review.

BOILER AND MACHINERY

The other casualty line on which a pure premium approach is taken in the rate making procedure is boiler and machinery insurance. The adoption of this approach is comparatively recent since, prior to promulgation of the 1944 manual, rates for that line were predicated upon a review of loss ratio data. The pros and cons of loss ratio vs. pure premium as a basis for rate review have been comprehensively covered in Dr. Kulp's article on "The Rate Making Process in Property and Casualty Insurance—Goals, Technics and Limits" in the symposium, Autumn, 1950 issue of the Duke University publication "Law and Contemporary Problems." It would be repetitious to go into those arguments in great detail at this point, though I must confess here that I do not entirely agree with his observations.

All rate making procedures represent some compromise between the practicable and the theoretical ideal. In any review of loss ratios it is necessary in the casualty insurance approach to rate making to adjust the experience to the existing rate level because the casualty approach fundamentally is to determine what would have been indicated as a rate level by the experience period under review if the existing rate level had been in effect throughout that period. It is assumed in this paper that the reader is acquainted with the fundamental fact that in the determination of casualty rates the loss provision is first established and then the expense provision is added thereto, usually as a percentage loading. We speak of the loss provision percentage-wise as the permissible loss ratio. In the boiler and machinery lines this ratio is not constant; rather, it is the sum of the percentage provisions for loss and inspection expense that is constant. It is this complication, and consequently the necessity for thinking in terms of dollar amounts of loss and inspection expense provisions rather than varying ratios of such to the premium, that was responsible for the transition from a loss ratio review to a pure premium review for that line in the classification detail.

The proposition that all rate making procedures represent a compromise between considerations of practicality and theory is well illustrated in the boiler and machinery line, because it is utterly impracticable to collect experience corresponding to every rate in the manual since the rates vary not only by type of object but also extensively by

size of object within type. Thus it is not possible to calculate an exact pure premium underlying the rates corresponding to any reported body of experience since such a body of experience may reflect several sizes of objects.

BURGLARY AND GLASS—THE LOSS RATIO APPROACH

On the burglary and glass lines, rates have always been made on the loss ratio basis with the exception that pure premium studies of the glass experience by classification have, in large measure, been the basis of modifications of the glass classification rating table. In the first place it is not practicable to tabulate the exposures in these lines in the refinement that would be necessary in the application of a pure premium approach to rate level determination. The resulting sub-divided blocks of experience would in general be so thin as to be not susceptible of interpretation. In the second place, such sub-divided information is not available under present rating procedures in the company offices and to obtain it would entail a vast increase in the amount of labor now necessary. At the present time statistics for these lines are reported to the rating organizations on punch cards and changes are now being made so that statistics may in the future be obtained on a calendar year basis as respects premiums, and on an accident year basis as respects losses (incurred for burglary and paid for glass). The classification relativities within the coverages for these lines constitute an area where it is felt that a fairly infrequent periodic check is all that is necessary and steps have been taken to eliminate such details of statistics from the compilations that will be made year in and year out.

CREDIBILITY PROCEDURES

There is not much argument about the fundamental bases of the loss statistics. Most of the discussion centers around their interpretation for the determination of manual rates. It is in this field that the toughest actuarial problems lie. Historically the initial solution was a simple application of underwriting judgment to the experience results. With the first workmen's compensation legislation, however, came the first regulation and the requirement of justifying the individual steps in the ratemaking process. Underwriters had known, as a matter of common sense, that a large volume of data is more reliable, more "regular" in its indications, than a small volume. The first application of mathematics in the development of a formula to determine relative reliabilities, or credibilities, of statistical data was set forth in a paper by Mr. Mowbray in the first volume of these Proceedings in 1914. His approach was based on the rough assumption that accident frequencies are distributed in accordance with the normal curve.¹⁰ Refinements and other approaches to the problem in manual rate-making have been developed, and in recent years Mr.

¹⁰A. H. Mowbray: "How Extensive a Payroll is Necessary to Give a Dependable Pure Premium?", P.C.A.S. I, 24.

Bailey in particular has contributed to clarification of the subject.¹⁷ Since mine is a non-technical paper it is not in order to summarize the mathematical thinking on the subject here. It will suffice to say that the usual approach in practice has been to establish criteria for complete credence, or 100% credibility, on specified mathematical assumptions, most often in terms of number of claims, but occasionally in terms of premium, expected losses, or some other statistical measure. Smaller degrees of credence are established mathematically on the basis of some formula related to the 100% criteria, usually $V=Z^2T$ where T is the 100% requirement (number of claims, for example), and V the corresponding requirement for the credibility Z.

It should be emphasized that any mathematical credibility formula develops from certain assumptions that must be specified. As used in the past, its primary function has been in the establishment of consistency in the interpretation of the statistics under review, through the establishment of a mathematical measure of relative reliability. An important by-product has been the introduction of greater stability both in the rate structure and in the ratemaking process. It is important that judgment in the interpretation of statistics in one state as compared with another, or in one class or territory as compared with another, be eliminated to the greatest practicable extent, and the use of credibility has facilitated that step.

If this approach is taken as simply a means of developing a consistent basis for the interpretation of the statistics under review, it is helpful as a tool in the solution of a very knotty problem. Some difficulty has been experienced, however, in its acceptance, not only among supervisory officials but also among some insurance industry representatives as well, as producing that fictitious ideal that I have referred to already as "actuarial certainty." Used in such a way it can become a dangerous and boomeranging implement.

The statistical analyst's work is extremely difficult because no one knows better than he the infamous possibilities inherent in misuse of his tools. If some one wished to write a really humorous paper on any aspect of the insurance business he could do no better than to choose for his subject the misuse of statistical information.

There are many of us who suspect that no final answer providing fool-proof mathematical criteria for the interpretation of insurance statistics can be developed. After all, the mathematical field involved is the theory of probabilities, and in that field a range of answers or a comparison rather than a definitive single answer is determined at best. Furthermore, the answer is being used predictively, which brings us into the most highly hypothetical, least developed and most difficult aspect of the theory. And finally, statistics in the insurance field do not demonstrate the regularity characterizing the statistics in those fields in which most of the advances in our modern statistical theory have been made.

Most of the current difficulties of the actuary in "selling" his rate

¹⁷F. S. Perryman: "Some Notes on Credibility," P.C.A.S. XIX, 65; A. L. Bailey: "Sampling Theory in Casualty Insurance, Part VII," P.C.A.S. XXX, 63; A. L. Bailey: "A Generalized Theory of Credibility," P.C.A.S. XXXII, 13; A. L. Bailey: "Credibility Procedure," P.C.A.S. XXXVII, 7.

revision programs to supervisory officials stem from this fundamental lack of absolute quantitative criteria for the interpretation of statistical data. Again and again the supervisory officials have to be re-educated to the idea that the credibilities reflect nothing absolute but only relative degrees of credence, and moreover, that if they are used in a distributional process even the indications of an experience segment carrying 100% credibility under the assumptions adopted may be subject to modifications before a rate is finally determined, in order to spread equitably the off-balance produced by introducing credibility factors into the formula.

Traditionally in the use of credibility factors a weighted average is obtained between two sets of figures with the credibility being used as a weight for the experience indications locally and the complement of the credibility being used as the weight for the framework taken as the norm from which indicated departures are measured. In the old workmen's compensation procedure, the framework taken as a norm consisted of a set of national classification pure premiums. In the general liability lines the norm has, on occasion, been taken as a set of national pure premiums but more frequently as the pure premiums underlying the existing rates or, in actuarial lingo, the "underlying pure premiums." A few years ago the use of underlying pure premiums in lieu of national pure premiums was substituted in the workmen's compensation procedures also.

In the 1948 revision of rates for the area and frontage owners', landlords' and tenants' liability classifications, a new approach was made to this old problem and the norm from which departures indicated by the local experience were measured was taken as a 50-50 weighting of national pure premiums and underlying pure premiums. Mathematically, this is a lengthier process than either of the others but it offers some advantages, which, I believe, have not received their due consideration. The chief objection to measuring departures from the underlying pure premium is that for the large number of classifications receiving low credibility in the respective territories the existing rate relativities are in effect frozen. On the other hand the principal objection to taking a set of national pure premiums as the norm is that rate relativities are in a continual state of fluctuation more or less violent. By taking the norm as a weighted average of these two, comparative stability is introduced while at the same time country-wide changes in classification relativities are given recognition. The weighting need not be a 50-50 weighting. Actually, the exigencies of the particular revision in question were such that a very high weight on the national pure premium would have produced inequitable results, and the 50-50 weighting was chosen largely for reasons of expediency.

The advantages of such a program are offset by the one great disadvantage attached to any utilization of national pure premiums, namely, that it is necessary to complete a countrywide tabulation of experience before it is possible to proceed to the development of a rate review in any particular jurisdiction.

Bearing in mind that credibility is introduced to impart consistency

to the interpretation of statistical data but that subject to that consideration it is also to be looked upon as an important tool for the implementing of underwriting judgment, it may be noted that there are other means of reflecting underwriting judgment by a consistent formula. I like to think of such formulas as a non-quantitative approach to the application of credibility. In this category, for example, would fall the procedure of taking the middle one of three pure premiums, (1) the underlying, (2) a short term experience indication which reflects trend, (3) a long term experience indication which emphasizes stability. This formula was originally used in liability lines and was subsequently utilized in the workmen's compensation field. As commonly used, it has been superimposed upon a credibility procedure but that is not always the case. The more plausible explanation of it is to say that consideration is given to two experience pure premiums, one a short term and the other a long term one and that if both lie on the same side of the underlying, that one is selected which produces the smaller rate change, whereas if they lie on opposite sides of the underlying then the underlying is selected.

Another approach which could be considered as in the same category is that followed in the 1951 revision of area and frontage rates in the owners', landlords' and tenants' liability line in the determination of statewide rate levels. This line has a fixed exposure basis so that the only way a change in premiums can reflect an inflationary impact is by a rate revision. Rates were not revised through the war years because the collection of detailed statistics at that time was suspended, but conditions changed very rapidly in that period. Hotels, for example, were filled as never before in the history of the business, department stores and other stores were crowded to capacity because the war-time economy developed wage levels which encouraged spending as never before. Consequently, when the first post-war experience became available for review, the indicated rate level changes were very great and the violence of the indicated changes in classification relativities appalling. Credibility factors were applied to the indications state by state in order to hold the overall rate level changes within limits that the industry felt were salable to the general public even though it was recognized that the rate levels thus attained were in the aggregate inadequate. In the second post-war revision was introduced the combination of national and underlying pure premiums as a starting point, a procedure already reviewed in this paper. The overall rate level changes indicated were still so great that only with the application of credibility were they held within bounds considered practicable. With the third post-war revision the rate level indications were still substantially upward but not in the degree indicated at the time of the previous revisions. Realizing the necessity of establishing state by state rate levels that it was hoped would approach adequacy at long last, credibility factors were not used but a formula was developed which gave increased weight to consistent trends in the experience which was now available over a three-year period. I have always felt that any credibility formula should accord

proper weight to consistency in experience but mathematical researches to date have not developed practical procedures for doing so. The rate level determination in this instance constituted a non-mathematical approach to the difficult credibility problem. It is hoped that some day the foundation will be laid for a quantitative approach reflecting the same principles, as has occurred so many times in the progress of statistical science.

EXTERNAL STATISTICS

So far, I have spoken only to insurance experience. It is also necessary to give recognition to other economic data on occasion. For example, in glass insurance the increases in replacement costs in recent years have been so substantial and so frequent that as a measure of self-protection carriers have had to introduce into their determination of manual rates factors reflecting such changes in replacement costs before there is time for their effect on the experience to be measured through insurance statistical reports. The rapid and substantial increase in these costs is the primary reason for the recent discontinuance of three-year policies on commercial glass installations.

One of the important fields for actuarial research in the future lies in the study of the effect upon insurance costs of other economic factors extraneous to the insurance business.

EXPENSES

In casualty insurance, as has already been stated, rates are customarily determined by establishing the loss cost and then loading that loss cost percentage-wise for expenses, profit and contingencies. The question of the factor of profit and contingencies is discussed in some detail later. The history of the recent controversy as respects allocated claim expenses was reviewed in section III. The other elements in the premium dollar on casualty lines have traditionally been production cost, taxes, general administration expense, inspection expense, audit expense, and unallocated claim expense. In some lines inspection and audit have been treated as a single item and in other lines where audit is not a part of the underwriting operations there is, of course, no such item in the premium dollar distribution.

With the advent of uniform accounting regulations which became effective January 1, 1949 in New York State, and January 1, 1950 in the other states, there arose extended discussions over the determination of these items. New York State had in 1923 introduced a Casualty Expense Exhibit modeled upon the old Schedule W for the reporting of workmen's compensation expenses by item. That Casualty Expense Exhibit provided for subdivision by item of expense data reported on a calendar year basis within each line, countrywide. The National Association of Insurance Commissioners has, since the S.E.U.A. decision, endorsed a similar exhibit known as the Insurance Expense Exhibit and within the past year has combined the exhibits

on fire and casualty lines to form a single exhibit. Because of the use of the form for both fire and casualty lines by all companies, the authorities prescribing the Uniform Accounting Regulations have been reluctant to recognize certain subdivisions of the expenses which have been traditionally utilized in casualty rate making but not in fire rate making and the Insurance Expense Exhibit now provides for a combination of the old inspection, audit and general administration items into a single item known as general expense. It is possible that in the future a further combination will be effected of this item with the former production cost item excluding commissions.¹⁸ The difficulties arise from differences in operation among various types of carriers, and the impossibility of establishing definitions of these subdivisions which will be functionally uniform for all carriers. Certain of the subdivisions are of extreme importance in individual lines,¹⁹ however, and since the carriers for that reason feel they must be maintained, provision has been made in the rating organizations for collecting data for the old subdivisions on the basis of advisory definitions.

Although the expense provisions are reviewed periodically on the basis of the Insurance Expense Exhibit results, there has always been a strong tendency to disregard minor fluctuations from year to year and to maintain the expense provisions on as stable a basis as possible. In the manuals published by the rating organizations, the expense provisions in the rates have always been predicated upon the requirements of the stock non-participating carriers. Where uniform manual rates are required, savings in expenses from the levels so established are effected by dividend, deviation or gradation as the case may be.

Particular problems are presented in the handling of the tax item for the lines where the rates vary by state, and also in the handling of the production cost item generally. It is now customary to include in the tax loading the state's legislated provision for premium taxes plus 0.5% for social security taxes, plus 0.5% for miscellaneous taxes, licenses and fees. For those lines, however, in which rates are not made on a state by state basis, it is necessary to establish a countrywide loading. As respects production cost, this item is not considered as subject to regulation by the Insurance Departments and consequently since the passage of the rate regulatory laws it has been customarily included in the rates as a designated percentage which is not considered to be subject to review on the basis of experience results.

Just prior to 1930, expense constants were first introduced in the workmen's compensation line, marking the initiation of formal programs providing for a gradation of expense elements by size of risk. Then in the mid-1930's the gradation idea was extended in connection with the first officially approved retrospective rating plan, also in workmen's compensation insurance. One of the important developments in the last few years has been an emphasis by state officials upon the necessity of thoroughgoing investigations to determine the

¹⁸Such a proposal was rejected at the June, 1951 meeting of the N.A.I.C. but will probably be presented again for consideration.

¹⁹e.g., inspection in elevator liability and boiler and machinery lines.

factual justification for such expense gradation. The initial proposals were founded upon a study made by 13 stock companies in 1930. Like all partisan projects, it has been subjected to criticism; but without going into the pros and cons, it can be said that as a pioneer effort it has stood the test of time well, and its results are remarkably close to those produced by subsequent studies.

The carriers, through committees working in cooperation with a technical sub-committee of the Commissioners' Association, undertook in 1950 an analysis of expense data by size of risk for the workmen's compensation and liability lines. The results of the study were reported to the Association at its December 1950 convention in Los Angeles. It is too early to comment upon the results because both the industry and the commissioners' committees are still engaged in analysis. The investigation should be the subject of a paper to this body at some early meeting.

Prior to the regulatory laws, gradation of expenses entered into the operations of the carriers in the unregulated lines, as a rough reflection of what appeared, even to casual observers, to be no more than the facts of life. Under regulation in many states, some latitude in that regard is permitted today. In most of the remaining states specific expense gradation programs have been introduced for the workmen's compensation and liability lines, and in one state for the glass line as well. Expense gradation was in effect for the boiler and machinery lines prior to the S.E.U.A. decision. The new liability programs are patterned after the earlier workmen's compensation programs, which have been discussed in some detail in these *Proceedings*. There is one difference which is noteworthy, however: in the workmen's compensation programs, the inspection item has not been graduated, whereas on automobile liability it has been found necessary to graduate that item upward as the size of risk increased. This is because the attention of the ratemaker in that line has been upon the individual specified car that is the source of the major portion of the premium volume; the average inspection cost element reflected in the manual rates is therefore very low, but on fleet risks the inspection expense actually approximates that necessary for workmen's compensation risks. Without gradation on the other items, or with judgment gradation, that fact can be recognized, but in a formal gradation program it is necessary to specify the upward gradation of the inspection element.

PROFIT AND CONTINGENCIES

It has been noted (II-(b)) that all of the laws include specific reference to a provision for profit or for profit and contingencies.

For many years a factor of 2.5% of the premium for profit and contingencies has been effective in the major casualty lines except workmen's compensation. In the workmen's compensation line a profit factor was dropped in the early 1920's during a brief post-war period of unjustified optimism and the carriers have had no success in reinstating it until within the past couple of years. At the present time in

the workmen's compensation line, the factor varies from state to state up to a maximum of 2.5% according to the varying success of the rating organizations in obtaining approval of the 2.5% proposal.

At the Commissioners' meeting in Quebec in June, 1950 the Workmen's Compensation Committee of the N.A.I.C. recommended recognition of a "specific factor for underwriting profit and contingencies . . . as reasonable and proper in connection with the development of Workmen's Compensation rates", but the Committee is still working on the development of recommendations as to the amount of that factor, having been instructed to report at the June, 1951 meeting.²⁰

Departure upward from the 2.5% profit and contingencies factor has been allowed for many years on minor property insurance coverages in the casualty field, such as burglary and glass, in recognition of the comparatively enhanced catastrophe possibilities in those lines (the analogy to fire lines in this respect is evident) and the smaller premium volumes involved. Although the question of recognition of investment profit has been investigated in a couple of states for certain of the casualty lines, no element for investment profit has been reflected in the establishment of any of the profit loadings. Moreover, it is significant that in the legislation as passed in most of the states there is a specific reference to "underwriting profit", indicating specific recognition by the state legislators of the principle that an investment profit element should not be a part of the insurance rate structure.

The Rates and Rating Organizations Committee of the National Association of Insurance Commissioners now has on its agenda the question of a proper profit loading for casualty lines other than workmen's compensation and this subject is to be explored thoroughly within the next few months. It would be premature here to anticipate that development. The review has been delayed to this date only because of the fact that it seemed desirable to wait until reliable indications of the other items in the expense provisions should be forthcoming under the new Uniform Accounting Regulations which became effective in all states January 1, 1950 (New York State only, January 1, 1949). The 1950 Insurance Expense Exhibit results are, of course, not available until later this month.²¹

JUDGMENT AND FLEXIBILITY

In the final analysis it must be re-emphasized that the determination of rates is not an automatic process but that judgment enters that determination at every step of the way, whether the rates be established on the basis of a formula or whether they be established as a

²⁰The Committee's recommendation of a 1.5% factor submitted at the June, 1951 meeting was rejected by the N.A.I.C., the majority of states having already approved 2.5%.

²¹At the June, 1951 N.A.I.C. meeting, Mr. Leslie, speaking for the National Bureau of Casualty Underwriters, announced that after Sept. 1, 1951 a factor of 5% for profit and contingencies will be included in the rates developed by that organization for all lines under its jurisdiction. At the same time, the item was transferred from the agenda of the Rates and Rating Organizations Committee to that of the Workmen's Compensation Committee of the N.A.I.C., because of the latter committee's familiarity with the discussions of the principle in connection with the workmen's compensation line.

direct result of judgment considerations. Any filer operating in a number of states certainly must have regard to examination by the National Association of Insurance Commissioners and must therefore develop procedures which can stand the test of such examination, particularly with reference to possible charges of unfairly discriminatory treatment of one state as compared with another. The rate regulatory laws are founded upon the premise that competition is to be preserved in the insurance business and as long as that premise prevails it is equally important to preserve flexibility in the rate making procedures.

V. INDIVIDUAL RISK RATING PLANS

"Something there is that doesn't love a wall."

—Robert Frost

The manual rates reflect broad averages of the experience indications on all risks within a given defined classification for a particular coverage. From the inception of casualty insurance it was recognized that these broad averages did not fit every risk equitably, and in the early days judgment modifications were made in order to tailor the premium to the requirements of individual risks. After the principles of regulation developed, it became evident at a very early date that there was need for plans which would formalize this treatment of the individual risk. Some of the earlier papers in the *Proceedings* of this Society bearing on this subject have become classics of actuarial literature.

The development of rating plans from the outset proceeded in two directions: (1) rating on the basis of the physical characteristics of the risk (schedule rating) and (2) rating on the basis of the experience developed by the risk (experience rating, with its various ramifications in prospective and retrospective types of plans).

When the Model Bill was drafted specific reference to rating plans was included (see section II-(d) above) in the following phraseology:

"Classification rates may be modified to produce rates for individual risks in accordance with rating plans which establish standards for measuring variations in hazards or expense provisions, or both. Such standards may measure any differences among risks that can be demonstrated to have a probable effect upon losses or expenses."

Certain things are to be noted in this phraseology. In the first place there is no restriction indicated in the number of rating plans that may be available; in particular there is no restriction indicated against schedule rating in addition to experience rating or against supplementing what we call prospective experience rating with retrospective rating plans. In the second place there is specific reference to recognition of variations in expense provisions as well as in hazards, either alter-

natively or jointly. In the third place reference is made to the establishment of standards for measuring such variations. And in the fourth place there is a specific statement that such standards may measure any differences among risks that can be demonstrated to have a *probable* effect upon losses or expenses.

All these points are important in the sequel, but first, in order to understand the developments that followed upon passage of the casualty rate regulatory laws in the past few years, it is necessary to review a little more fully the situation that prevailed at the time of the S.E.U.A. decision.

EARLY EXPERIENCE AND SCHEDULE RATING

In the workmen's compensation field the backbone of individual risk treatment was embodied in prospective experience rating plans, that is, plans which compared the losses actually developed by the risk over a specified past period with the provisions for losses in rates currently applicable, with increasing weight (credibility) on the risk's own experience as the size of risk increased, and from such a comparison developed a modification, credit or debit, to be applied to the rates for the ensuing policy period. Through approximately the first twenty years of workmen's compensation insurance, experience rating was supplemented in most states by schedule rating plans analogous to the rating of physical characteristics in the fire lines. The schedule rating plans were extremely instrumental in stimulating safety measures in all fields of industrial operations. But the plans were very costly to apply. Further, after about twenty years it was considered that these safety measures had reached such a degree of effectiveness that schedule rating was no longer needed to stimulate further activity in that regard, that experience rating would suffice in the future to measure individual risk differences, and that these considerations, together with the economies resulting from the move, would justify the elimination of schedule rating plans. They were accordingly eliminated in most of the states.

Experience rating was applicable to the other lines, on a mandatory basis in the regulated states and on an optional basis in the other states. The plans that were developed in those lines in the regulated states were modeled after the plans in the workmen's compensation line. The details of these plans involved so much work in application that, in general, in the states other than the regulated states it was not considered economical to utilize them as they stood and they were used as guides rather than as final determinants of the premium for an individual risk.

As the complexities of the business increased it was recognized that many of the definitions of coverage were more a matter of legal or underwriting convenience than the result of differentiation by fundamental principles, and furthermore that if the objective of experience rating was to reflect the effect of personal management on experience results, the effects of such management were not peculiar to a particular coverage but rather extended over all of the related casualty cover-

ages. Accordingly the practice grew of considering the casualty coverages on each risk in combination rather than in their individual compartments, and it was found that the experience rating plans for the lines under regulation were so rigid that substantial modification of the rates for the other coverages was necessary in order to produce a reasonable premium for the entire combination of the risk. This was done on an interstate basis, it should be emphasized.

RETROSPECTIVE RATING

In view of the fact that on many risks the workmen's compensation premium constituted a very major portion of the combination of casualty premiums, it was found that even this development was not sufficient. Moreover, expense studies made around 1930 indicated that expense gradation by size of risk, which had long been reflected on a judgment basis in the unregulated lines, could be supported statistically and should be reflected on the regulated lines as well. These two ideas were combined in 1934 in the introduction of a new type of rating plan known as retrospective rating. Under this type of plan the premium determined by the application of prospective experience rating is further modified on the basis of the experience developed for the policy period to which the premium is applicable. It is necessary therefore to wait until the policy period has elapsed before the rating can be completed. A basic premium is established containing essentially the necessary provisions for expenses other than claim and taxes and to this basic premium is added the losses increased to take care of claim expense on those losses. The resulting premium is then increased to provide for taxes and is subject to specified maximum and minimum limitations. As a consequence of these latter restrictions, the basic premium also contains a charge to take care of the losses that on the average are excluded from this formula calculation by the application of the maximum and minimum limitations. A gradation of expense as the size of the risk increases is also incorporated in the calculation of the basic premium.

COMPOSITE RATING

The evolutionary process did not stop with retrospective rating. There is involved in the application of all of these plans a tremendous amount of administrative detail, particularly as a result of the necessity of extending exposures at present rates. For some types of coverage the ascertainment of exposures as required by application of manual rules and rates is unreasonably burdensome. As a simple illustration consider a firm that has scattered around the countryside thousands of advertising signs erected over a period of many years each of which, according to the manual, must be measured for rate determination for liability insurance. Or consider a large risk which is unwilling to divulge the exposure required by the manual for one coverage or another. Such difficulties have led to the development of what are called composite rate plans under which one or more exposure

bases are selected, the premium on the manual basis calculated where it can be calculated and estimated where estimation is necessary, and a rate or rates established on the basis of the revised exposure units for application in the future. The economies inherent in such an approach to rating are, of course, apparent and these plans now have their established place in the structure of individual risk rating.

POST-S.E.U.A. PLANS

It is evident that the structure of the entire system of individual risk rating as applied just prior to the enactment of the casualty rate regulatory laws involved a considerable degree of flexibility in order to meet the exigencies of the situation created by a comparatively rigid regulation of the workmen's compensation line generally, and of the other casualty lines in a small number of states. The adjustments to be made under the regulatory laws therefore had to recognize the necessity of avoiding the violent effects that would have been produced on individual risk rates by the sudden imposition of restrictions similar to those that previously applied under the more rigidly regulated coverages.

Accordingly, the type of plan commonly made effective in most of the states under the new legislation involved a three-part approach to a proper recognition of the conditions peculiar to the risk: (1) the application of a schedule rating plan which established a range of credits and debits applicable for specific categories of physical conditions subject to an overall limitation of 25% in either direction; (2) reflection of such expense savings as are realized on the risk; (3) the application of a simple experience rating plan based upon a comparison of the risk's loss ratio for the experience period (adjusted to a manual basis) with the permissible loss ratio, the departures from manual rates thus indicated being modified by a credibility factor which increases as the size of risk increases. These features are severally optional in application in order to enable the companies to economize in the administrative expense that would be attendant upon a compulsory review of the details of every single risk. Interstate rating is permitted. The eligibility points are, in general, lower than under mandatory plans because it is true that there are risks below the usual mandatory eligibility requirements which are deserving of individual risk rate modification but the administrative expense of processing all such risks automatically would be prohibitively great. A mandatory plan involves, almost of necessity, a combination of the experience of the various carriers on a risk. Such a procedure is not practicable, to put it mildly, except where all carriers are using common definitions of coverages, territories and classifications and either common schedules of rates or flat deviations from a basic schedule. Under the usual optional plan, some latitude is also allowed as respects the experience to be used in the experience rate procedure and the credibility table is more liberal than could be allowed under a mandatory plan.

It has already been remarked in the discussion under section II-(a)

that the basic criteria established by the laws for determining rates are essentially subjective rather than objective. The latitude allowed by the individual risk rating plans in use generally under these laws is more in keeping with the apparent principles underlying the establishment of those criteria than is the rigidity that is inherent in a mandatory plan permitting no latitude in its application.

The carriers have not been united in their approach to this problem, some groups believing that a more precise formula is necessary. The variations in approach are dictated to a certain extent by competitive considerations but the difference really goes deeper than that and involves a fundamental split in social philosophy which I am not going to take the time to explore here.

Two or three states have made the experience and schedule rating plans mandatory, a couple of others have made them mandatory insofar as intra-state operations are concerned, and one has made them mandatory for renewal business only but not as respects new business. These plans are used generally for the liability, burglary and glass lines, and in only two states for workmen's compensation insurance. It may be noted that prospective experience rating has never been applicable to boiler and machinery lines because it has been considered that the variable and comparatively low permissible loss ratios would render its application impracticable except for very large risks, and other methods of treating the larger risks have been evolved.

At the same time that the schedule and experience rating plans were generally introduced, retrospective rating plans were developed for optional application. In the development of these plans also, attention was given to the necessity for greater latitude than had been commonly allowed under the retrospective rating plans applicable to workmen's compensation insurance, and the principle was introduced of tailoring the plan to the requirements of the individual risk by a formula procedure which is balanced actuarially but within the restrictions of such balancing process permits individual risk determination of the maximum and minimum premium limitations. This principle was later extended to the workmen's compensation lines and coordinated with the principle of permitting the merging of workmen's compensation and liability experience in the determination of a combined rating for the risk, in what has become known as Plan D. Agents and other field men delight in referring to this somewhat bulky set of rules and tables as the "D - - - Plan," rather than Plan D. It must be admitted that if an actuary should produce a practicable arch-simplification of the procedures involved in application of the "D - - - Plan" the prestige of the entire actuarial fraternity would be inestimably enhanced among producers. But it must also be admitted that much of this reaction is the result of mental lassitude on the part of individuals who have not even tried to understand what is fundamentally a plan far less formidable than it appears.

The retrospective rating principle has also been extended to the rating of boiler and machinery risks but with the high eligibility point of \$25,000 of standard premium for the reasons indicated above in the

discussion of experience rating for that line (\$5,000 in New Jersey and Texas). In this plan, as in the plans generally applicable for the other lines, considerable latitude is granted the carrier in the treatment of expense items. In particular, up to 50% of the inspection portion of the premium may be included in the loss conversion factor to vary with the losses on the risk, the balance of the inspection provision being included in the basic premium charge. This feature recognizes the fact that as losses increase the inspection costs will be increased in the attempt to alleviate the loss problem. There are a few states in which there are special restrictions on the treatment of company expense savings.

The scope of this paper is so great that I am making no attempt to go into the state by state variations in these rating plans. The differentiation in details of handling that have been forced upon the carriers in their negotiations with individual states are so numerous that considerable extension of the paper would be necessary in order to note them all. A far greater extension would be necessary in order to note all of the variations introduced by other groups of carriers and by independent carriers in their filings in the various states, although the enlightenment of such a critique would be astounding.

Composite rating plans have also been approved for use in most states. Recently the standard plan for composite rating has been modified to include a new principle termed loss rating, applicable to a risk written on a composite basis which has developed total basic limits incurred losses of \$75,000 or more for the liability lines over a three-year period. This procedure provides essentially for the determination of the risk's premiums directly upon the basis of its own past loss experience, i.e., self-rating. The justification for this approach has been very well phrased by the then New York Deputy Superintendent Walter F. Martineau who, in a speech before the Philadelphia Insurance Managers' Association on May 6, 1949 spoke as follows with regard to the large risk rating problem:

"Under practically all of the current procedures the large risk is not only put through the same steps which were designed for the small risks but is also put through the additional steps superimposed only for the large risks but designed to produce modifications of the rates of premium applicable to small risks. Prior to the recent extension of rate regulation, it was the practice among many casualty companies to treat large risks as such, without regard to the manual rates applicable and on the basis of the loss experience of the particular assured, to quote premiums instead of rates for such large risks. It must be apparent that a volume of experience which is sufficient to produce a self-rating modification of manual rates is also sufficient to produce a rate or premium for the risk irrespective of what manual rates for other risks may be. Likewise, if the loss experience for a somewhat smaller risk is sufficient to permit the retrospective rating of the loss portion of the premium, it is also sufficient to produce retrospectively the expense portion of the premium. Real-

ization of this raises one of the most serious problems which the industry has to face under rate regulation; namely, how to produce rates which are reasonable, not excessive and not unfairly discriminatory for large risks but which will not be tied up as modifications of the rates which would be applicable to smaller risks."

Aristotle summed it all up very neatly in his definition of equity as "the correction of the law where it is defective by reason of its universality."

VI. SUMMARY AND PROSPECTUS

*"Wherefore waste our elocution
On impossible solution?
Life's a pleasant institution,
Let us take it as it comes!"*

—W. S. Gilbert

It is in order at this stage to summarize in a general way the effects of rate regulation as they can be seen thus far, favorable and unfavorable, and to outline a few of the problems which face us in the future.

If the insurance industry could have chosen any point in its history for the widespread introduction of rate regulation, it could not have chosen a more unfavorable point than the immediate post-war period in which that development actually occurred. In the first place, detailed statistics were unavailable except in the workmen's compensation and the boiler and machinery lines, since detailed statistics in the other lines had been suspended for the duration of the war and their recording was not re-introduced until January 1, 1946, with the first reports becoming available late in 1947. In the second place, the unsettled economic conditions at the very outset, with a pitched battle between the forces of inflation and the forces of governmental price and wage control, created problems which were in themselves unprecedented in the business. In the third place, the victory of the inflationary forces initiated in the liability and property lines an upward trend in loss costs the end of which is yet to be seen. In the fourth place, the tremendous expansion in the volume of business written as an indirect result of the victory of the inflationary elements created internal company problems that were tremendous and could not be anticipated. All in all, the success with which the industry has stood this test is little short of miraculous; and the supervisory officials should be credited for the understanding spirit in which they have entered upon the era.

FAVORABLE DEVELOPMENTS

The most important favorable effect to be noted is probably the establishment of greater regularity and reasonableness in the reporting and review of experience and in the determination of rates. This process has been greatly speeded up by the necessity of providing a logically supportable explanation of the filings. Many rules of thumb have been supported, others eliminated as unsupportable, and the entire ratemaking structure subjected to thoroughgoing review and clarification. While a great deal can be said for competition as a regulative factor, it is true that in some areas of the business its success in that respect was at least subject to question. While the results of this failure were not nearly as vicious as many people would have us believe, there are few who will maintain in this day that some regulation of such situations is undesirable. It is also true that in the more competitive areas rate-cutting practices were previously in effect which in the long run helped no one, least of all the insurance buying public. The effect of regulation has been to moderate such practices to a degree where competition has much more nearly approximated its proper functioning as a regulative force.

Emphasis has been laid upon the necessity of establishing consistency in rate making procedures, i.e., if you will, a formularizing of underwriting judgment.

Research has been unquestionably stimulated as never before. I have already referred to developments in the field of credibility procedures. Many studies have been made both in the organizations and in individual company offices on the effect of external statistical developments upon insurance costs. I have also reviewed developments in research on the bases of statistics, and on expenses by size of risk.

No such appraisal would be complete without reference to the uniform accounting developments which have produced more proper allocation of expenses by line of insurance and provided sound foundations for various special studies in the expense field. State officials who spear-headed that development will admit today, I am sure, that they were idealistic in their objectives to the point of impracticability. The present Uniform Accounting Committee of the Commissioners' Association is taking a more cooperative and understanding approach to the situation, though their more cautious movement may be partly due to the fact that the main objective has already been accomplished.

The greatest generative force in the industry in the past has been the willingness of companies to experiment. Regulation in a number of states threatened for a while to stifle experimentation, but I think it is a very hopeful sign that in the last year or two the supervisory officials themselves have taken a number of occasions to encourage experimentation and I believe a reaction in that direction is developing which will produce refreshing results.

UNFAVORABLE DEVELOPMENTS

There have been a number of unfavorable developments some of

which may in time be ironed out in part but others of which may well be more permanent of necessity.

Most important, there has been evidenced by some state officials more emphasis upon the protection of the interests of the insuring public than of the insurers, quite understandably; but this tendency has often been carried to extremes and in the important lines where the impact of inflationary elements has been particularly marked the effect, direct and indirect, has been to produce rate levels that are continuously on the low side. It is important for a rating organization to develop a revision which, in the first place, is based upon the same formula application from state to state and, in the second place, has reasonable chances of success before the various state supervisory officials. The combination of these two considerations, taken with the chronically ultra-critical or even negative attitudes of some state supervisory officials toward any submission embodying an increase in rates, has resulted in the development of rate revision programs that have been too conservative. There has been too much fear of the adverse publicity that would be attendant upon an over-estimation of an upward trend in the experience.

More emphasis is needed upon the fact that the solvency of the carriers must be the paramount consideration in rate regulation. The carriers must develop more aggressiveness in insisting that any doubt in the appraisal of a rate submission should be resolved in the direction of rate adequacy. Low rates are of no benefit to the policyholders if the carriers cannot maintain solvency and pay losses; and when rates become the footballs of political thinking sound regulation goes out the window.²²

One of the sources of loss in premium income to the carriers has been delays on the part of certain supervisory officials in making decisions on rate submissions, thus denying to the carriers the benefits of rate changes sometimes for many months during an emergency period. The carriers, of course, have right of appeal for a hearing under the law but that involves even further delay together with all of the psychological disadvantages of such action.

In the rate making procedures it has become necessary to make state by state reviews in lieu of the broad reviews which prevailed prior to the war. In many instances this means that statewide rate levels are established upon the basis of experience which is so inadequate as to be almost uninterpretable. There have of necessity developed schedules reflecting differences from state to state which from an actuarial point of view are smaller than any reasonable limits of error in the determination of the rates themselves, and consequently could be eliminated with all of the benefits of simplification resulting from such a change, were it not for the emphasis of state officials on their own state's experience. Exceptions have been possible in the case of schedules which for one reason or another establish rates that are uniform countrywide, or countrywide excluding New York State.

²²Since this paper was written, the receptive reaction of state supervisory officials to the industry's submissions for relief in the emergency situation affecting the automobile liability lines indicates a strong movement toward comprehension of the industry's problems in this regard.

A great deal of pressure has been brought to bear even upon these schedules, however, and it may be only a matter of time before meaningless refinements will have to be made in them in order to reflect chance fluctuations in individual states where such fluctuations happen to be temporarily favorable from the local viewpoint.

The overall result, of course, tends to more frequent and more violent fluctuations in the rates from revision to revision and consequently more frequent disturbances in the field and among the insuring public.

Underwriting judgment is an invaluable and indispensable guide in the establishment of rates. Rate regulatory authorities, have as a matter of principle and simplicity in administration, sought to formulate all rate making and to remove the introduction of judgment except in so far as it determines a "permanent" and rigid formula. The rating organizations have consciously striven to maintain a reasonable degree of flexibility in the rate making procedures, and in order to combat the supervisory tendency in the direction of rigidity have emphasized again and again that judgment must perforce enter at every step of the rating procedure, that rate making can never be reduced to purely automatic processes.

A good illustration of the continuous battle between the principles of blind dependence on statistics and a formula on the one hand and informed judgment on the other is found in the struggle the carriers have had to stave off reductions in the charges for excess limits on the automobile bodily injury liability coverage, while judgment dictated that those charges should be increased and that it was not reasonable that they should have to be supported solely on the basis of reported loss statistics. This is an acute problem requiring an early solution that cannot be entirely on the actuarial plane.

THE FUTURE

As respects the future, first and foremost stands out the need for further intensive research into actuarial problems. I list the following fields of research which are of particular importance:

- (a) Liability excess limits tables and their reasonable determination and support.
- (b) The relationship of external statistics to insurance cost developments.
- (c) Credibility procedures.
- (d) Expense studies.
- (e) Underwriting profit.
- (f) Study of fire rate-making philosophy in connection with property lines in the casualty field.
- (g) Possibility of single limit liability policies.
- (h) Broader consistency in the establishment of liability rate levels. It does not seem reasonable that the relativity between rate levels from state to state should vary as much as it does from liability coverage to liability coverage. Research in this

field may produce a solution to the present inadequacies of the state-by-state review of these lines. The same can also be said of the burglary coverages as a group.

One problem bids to come to the fore with greater and greater emphasis in the future, namely the question of how broad an experience base should be required for the development of loss provisions in the rates. A very few states insist, either by legislation or by regulation, that the experience of all carriers entered in the state be combined for this purpose. There are, as usual, arguments on both sides of the question. Such loss provisions, as I have already pointed out, are not turned out of a machine mechanically and infallibly. Consultation and agreement are necessary for the process. But any compulsion in that direction is counter to the intent of virtually all of the regulatory acts as set forth in the "Purpose" clause of the Model Bill, and in the following language from the "Rate Filings" section: ". . . nothing contained in this Act shall be construed as requiring any insurer to become a member of or a subscriber to any rating organization." Further, the laws generally embody the thought that individual company departures from an overall average should be permitted. It does not stand to reason that departures upward would be widely sought, if sought at all, and yet a granting of only downward departures to many carriers on the basis of their individual company experience would produce an overall loss cost level that is obviously inadequate. Another consideration is that certain groups of carriers operating under a reasonably uniform procedure as respects underwriting and claim settlement policies feel that they should be permitted to exclude from the determination of their rate levels the experience of carriers operating under different management policies.

An obvious alternative to this suggestion is the idea of simply providing for the compilation of the overall experience results in each state so that the loss cost indications on the basis of the experience of all carriers combined would be generally available. Here again the immediate difficulties seem almost unresolvable because it is not reasonable to combine the experience when classification, territory, or coverage definitions differ from company to company. The experience of one company in such a situation is just not comparable on any terms with the experience of another company and the combined result is accordingly meaningless from an actuarial standpoint. It is unfortunate that an apparent plausibility not supported by scientific consideration lends enchantment to this particular prospect and yet the condition which should be precedent to such a combination of experience, that is, complete uniformity in class, territory and coverage definitions, is repugnant per se because it would stifle the experimental and competitive developments which furnish life-blood to the industry.

The task of the supervisory official in passing upon filings of rating organizations is difficult enough. But such filings are in general based upon a comparatively large volume of experience and supported by extensive exhibits and memoranda. Of much greater difficulty is the problem of passing upon the filings of independent carriers. The at-

titude of one of their representatives was related earlier in this paper, with my reasons for thinking it constitutes an unsatisfactory solution. No one has yet presented a pattern of review that is satisfactory to the officials who have the responsibility.

In the field of individual risk rating, two principles are of outstanding importance and both seem reasonably well established as of this date. The first is the necessity of interstate rating and the second is the necessity of a reasonable degree of flexibility in the handling of large risks in order to fill the role played in former days by out and out underwriting judgment rating. Attacks against the latter aspect of existing rating plans have been predicated upon reports of individual abuses and it is obvious that the continuation of the privilege granted by the authorities in such provisions of flexibility must in the long run be dependent upon the integrity of those who apply it. On the other hand the maintenance of the principle is so important from the viewpoint of the insured's interest that officials should move very slowly indeed in seeking to remedy a recalcitrant finger by lopping off the whole arm.

Not even the structure of individual risk rating plans currently available, as described in section V, is adequate to provide the answer to all the problems that may arise in the handling of individual risks, particularly those of very great size. I think there is merit to an idea that was considered some years ago in connection with boiler and machinery insurance, but which is equally applicable to other lines, that any risk producing an annual premium of \$25,000 at manual rates should be subject to (a) rate treatment, that is, individual risk rating on an underwriting judgment basis, possibly with the establishment of certain limitations within which the judgment modification must be contained. Such a proposition would go far toward eliminating the company administrative costs of handling many of the larger risks and at the same time would produce at least as equitable, if not more equitable, rates than the rating structure as it exists today. It is probable that the experience on such risks would have to be eliminated from manual rate making procedures but risks of that size are so abnormal that the effects of such action might well be beneficial rather than detrimental. Such an extension of the individual risk rating system would supplement present procedures in a manner which would make the insurance rate determination more adaptable to individual risk situations and would fill a gap that clearly exists today in the servicing of risk requirements.

Of extreme importance is the post-S.E.U.A. development of multiple-line legislation which has broken down the time-honored wall between the fire and casualty fields. This development is so recent that the trend of events that will follow it is just beginning to unfold. Already combined blanks for the Annual Statement and the Insurance Expense Exhibit have been approved by the National Association of Insurance Commissioners. A number of carriers have introduced package or comprehensive policies combining fire and casualty coverages, and from an actuarial standpoint probably the most important problem

for the future is whether each such policy will be considered to be a new coverage and treated as such, or whether it will be considered necessary to maintain a reasonable relationship between the rates for the component parts if sold separately and the rate for the combination coverage. Initially the supervisory officials seemed inclined to adopt the former view if the combination policy did not in fact represent a direct combination of existing coverages. There has even been some tendency more recently to consider that a direct combination of existing coverages could be viewed as a new coverage. Present rating organizations in the two fields have negotiated arrangements for processing such combination coverages but there is at least one rating organization which is extending the scope of its activities to assume control of certain combination policies which include coverages not otherwise within its jurisdiction. The entire situation is still so uncertain as to make it impossible to predict which way developments will turn.

Statistically, serious problems are ahead arising from the entry of the fire companies into the casualty field and vice versa. The burden in this respect seems to be greater for the fire companies because the detail required in calls for casualty statistics is more refined than the detail to which the fire companies are accustomed in their own lines. It may well be that this development in the long run will produce a compromise solution as respects casualty statistics which will lighten the burden that has been created through the years primarily as the result of the pressure applied by the Insurance Departments in this regard, a pressure that may be traced to the influence of the workmen's compensation situation and the fact that it is included among the casualty coverages. The changes in the statistical plans of the casualty rating organizations, made effective January 1, 1951, have gone some distance in the alleviation of the statistical burden of the casualty carriers reporting to those organizations but there are those among us who believe that a further lightening of the burden is going to be absolutely necessary before the carriers will be able to respond to calls with a promptness which will permit a reasonably prompt review of experience for rate making purposes.

Finally, it is essential to make reference to the problem of interstate consultation on the part of the supervisory officials. The most obvious approach to this idea has been a proposal to establish a central office through which countrywide filings would be processed before submission to the individual states, that office to make recommendations after review but to have no authority with respect to decision in any state. The immediate reaction to such a suggestion is that if we are to have regulation on a national scale it would be far more economical to have it openly with the elimination of the state departments. Furthermore, there are many disadvantages inherent in the very idea of a prior review by a central office which is merely advisory in character with complete independence of decision still in the hands of state supervisory officials. Such a procedure could only produce serious delays in the processing of submissions.

Certain of the Zones (groups of eight states each) in the National

Association of Insurance Commissioners have tried to obtain the apparent advantages of a central office on a smaller scale by providing for exchange of information among the rating experts within a Zone. This has the same disadvantage as the central office idea in the matter of delay in the processing of submissions, and has a further disadvantage in spreading around a group of states for successive discussions questions which in the normal course of events would have to be answered only in one state. Where these questions constitute positive contributions to the consideration of the subject their dissemination can be of advantage but that is very seldom the case and the problems of the carriers and rating organizations are only intensified.

Commissioner Stone of Nebraska has urged upon the National Association of Insurance Commissioners a procedure that he refers to as "interstate compacts" for interstate consultation under the protection of the constitutional provision relating to such compacts. Thus far this proposal has not met with widespread support but the entire subject of interstate consultation is still on the agenda of the Association in the form of a resolution from Zone 1 (Northeastern states) presented to the Association at its December, 1950 meeting in Los Angeles.

In closing, it is perhaps unnecessary to remark that the accident of my employment throughout the developments that have been discussed has made it inevitable that those developments be reviewed with particular attention to their effect upon the problems of the actuary in a rating organization. At the same time I have tried to indicate the impact upon other parties and have striven for an impartial understanding of the problems of all parties. If I have fallen short in this regard, I hope that discussions of this paper, or subsequent papers, will be forthcoming to complete the picture. It is a picture still in the process of composition, and includes a multitude of smaller scenes many of which evolve almost independently and must be retouched to harmonize with the whole.

Regulation is with us, to stay, and only a proper appreciation of its impact upon all parties, public and private, stock and non-stock, organization and independent, can produce the reconciliation of conflicting interests that will make it work effectively and for the good of all.

APPENDIX A
EXCEPTIONS TO MODEL BILL PHRASEOLOGY

The provisions discussed in detail in subdivisions (a), (b), (c), (d), (e), (i), (k), and (l) of section II will be summarized here in the same order as set forth in the paper. Only substantive differences are summarized in this Appendix and it should be emphasized that this summary is essentially from the point of view of an actuary, not of a lawyer.

(a) Basic Criteria for Rates

"Rates shall not be excessive, inadequate or unfairly discriminatory."

<u>State</u>	<u>Basic Exception</u>	<u>Definition of</u>		
		<u>"Excessive"</u>	<u>"Inadequate"</u>	<u>"Unfairly Discriminatory"</u>
Ala.	1			
Ariz.		15	18	
Calif.		16	19	
D. C.				24
Fla.	2			
Idaho			19	
Ind.				25
Kan.	2			
Me.				25
Mass. Stat. Auto	3			
Minn.			20	
Miss.	2			
Mo.		16	19	
Mont.	4	4	4	4
Neb.			21	
N. H.				
1. Auto. Liab.	5			
2. Other Cas.				25
N. J.	1			
N. Y.	6, 7			
N. C.	8			
Okla.		16	19	24
Ore.	9			
P. R.	6, 10			
R. I.			22	26
S. C.		17		
Tenn.	11			
Tex.	12			
Utah			23	
Vt.	13			
Wash.	14			

1. "... rates that are not unreasonably high or inadequate for the safety and soundness of the insurer, and which do not unfairly discriminate between risks in this state." New Jersey continues: "involving essentially the same hazards and expense elements."
2. "Rates shall be reasonable, adequate and not unfairly discriminatory."
3. Premium charges shall be "adequate, just, reasonable and non-discriminatory."

4. In addition to the standard phraseology the following statements are pertinent: Rates on property shall not discriminate unfairly "between risks and the application of like charges and credits or . . . between risks of essentially the same hazard and having substantially the same degree of protection, nor shall any rate be such as to endanger the solvency of such insurer."
 "No rate shall be held to be excessive, inadequate or unfairly discriminatory if the commissioner finds that free competition exists in the area and classification covered by such rate."
 "No rate shall be held to be inadequate unless the commissioner finds that the continued use of such rate shall endanger the solvency of the insurer charging such rate."
5. Rates shall be "adequate, reasonable and non-discriminatory as against citizens or classes of citizens of this state."
6. Rates shall be "reasonable and adequate for the class of risks to which they apply." "No rate shall discriminate unfairly between risks involving essentially the same hazards and expense elements or between risks in the application of like charges and credits."
7. "If the superintendent finds that any rate filings theretofore filed with him . . . provide rates or rules which are inadequate, excessive, unfairly discriminatory or otherwise unreasonable, he may order the same withdrawn. . ."
8. 1. **Casualty Other Than Automobile Liability**—"The commissioner shall not approve any rate, rate manual, classification of risks, rating plan, rating schedule or other rating rule which is excessive, inadequate, unreasonable or unfairly discriminatory." There is also provision for correction of an "application of an approved classification, rating plan, rating schedule or other rating rule" that is "unwarranted, unreasonable, improper or unfairly discriminatory."
 2. **Automobile Liability**—The phraseology is somewhat different but effectively the same. As respects rates, the phrase "or otherwise not in the public interest" is added. The "unwarranted, unreasonable, improper or unfairly discriminatory" phrase is applicable only to "a classification or classification assignment."
9. "Rates shall be just, reasonable and not unfairly discriminatory."
10. "Whenever the Superintendent shall determine . . . that the rates charged or filed on any class of risks are excessive, discriminatory or inadequate, he shall order that such rates be appropriately adjusted."
11. "Rates shall be fair, reasonable, adequate and not unfairly discriminatory."
12. 1. **Automobile Liability** — ". . . just, reasonable and adequate for the risks to which they respectively apply, and not confiscatory as to any class of insurance carriers authorized by law to write such insurance."
 2. **Other casualty lines** — "Rates shall be reasonable, adequate, not unfairly discriminatory, and non-confiscatory as to any class of insurer."
13. ". . . rates shall be just, reasonable and adequate, taking into consideration all factors reasonably attributable to the classes of risks involved."
14. Model bill criteria are stated specifically *not* to apply to casualty insurance.
15. "No rate shall be held to be excessive if the commission finds that competition exists in the area and in the classification covered by any such rate."

16. "No rate shall be held to be excessive unless (1) such rate is unreasonably high for the insurance provided and (2) a reasonable degree of competition does not exist in the area with respect to the classification to which such rate is applicable." Oklahoma establishes as alternative conditions (1) alone or (1) and (2) together.
17. Rates are "excessive, or unreasonable" if "the results of the business of companies in this State during the five years next preceding the year in which the investigation is made, as indicated by the official annual statements of the insurance companies . . . show an aggregate underwriting profit in excess of a reasonable amount. . ."
18. "No rate shall be held to be inadequate unless the commission finds that the loss experience of the insurer in the classification covered by such rate shall have been adverse for a continuous period of not less than two years immediately preceding the date of such finding."
19. "No rate shall be held to be inadequate unless (1) such rate is unreasonably low for the insurance provided and (2) the continued use of such rate endangers the solvency of the insurer using the same, or unless (3) such rate is unreasonably low for the insurance provided and the use of such rate by the insurer using same has, or if continued will have, the effect of destroying competition or creating a monopoly."
20. "No rate shall be held to be inadequate if the information furnished by the insurer in support of the filing shows that the business being written at the rate proposed in the filing is being written by the insurer at a profit."
21. "No rate shall be held to be inadequate for use in this state if its use will not endanger the solvency of the insurer charging such rate and if it bears a reasonable relation to the loss and expense ratios of such insurer in all states in which it is licensed for the same class of risk."
22. ". . . if the insurer using the rate or premium shall show to the satisfaction of the commissioner that it is writing such kind or class of insurance at a profit, such showing shall be prima facie evidence that the rate or premium used is not inadequate."
23. "No rate shall be held to be inadequate unless the Commissioner finds that the continued use of such rate will or does endanger the solvency of the insurer or that the loss experience in the classification covered by such rate shall have been adverse in this state and that the use of such rate does eliminate or stifle competition."
24. "Nothing in this section shall be taken to prohibit as unfairly discriminatory the establishment of classifications or modifications of classifications of risks based upon the size, expense, management, individual experience, location or dispersion of hazard, or any other reasonable considerations attributable to such risks provided such classifications and modifications apply to all risks under the same or substantially similar circumstances or conditions."
25. "Nothing in this section shall be taken to prohibit as unreasonable or unfairly discriminatory the establishment of classifications or modifications of classifications of risks based upon size, expense, management, individual experience, purpose of insurance, location or dispersion of hazard, or any other reasonable considerations, provided such classifications and modifications apply to all risks under the same or substantially similar circumstances or conditions."

26. "If the insurer . . . shall, at any hearing . . . show to the satisfaction of the commissioner that the rate or premium was used in good faith to meet an equally low or lower net cost to the insured of a competitor, such showing shall be prima facie evidence that the rate or premium used is not unfairly discriminatory. . . ."

(b) Basis of Rates

The following division of the phraseology into six parts has been added for convenience in reference.

"Due consideration shall be given

- 1) to past and prospective loss experience within and outside this state,
- 2) to catastrophe hazards, if any,
- 3) to a reasonable margin for underwriting profit and contingencies,
- 4) to dividends, savings or unabsorbed premium deposits allowed or returned by insurers to their policyholders, members or subscribers,
- 5) to past and prospective expenses both countrywide and those specially applicable to this state, and
- 6) to all other relevant factors within and outside this state."

State	Exceptions						Other
	(b)-1	(b)-2	(b)-3	(b)-4	(b)-5	(b)-6	
Ala.	1	4	8	11	4	16	
Calif.	2	2	2	2, 12	2	2, 17	
D. C.							20-23
Fla.	3		9		4	3	
Ill.							22
Ind.				13			
Kan.			9	11	4		
Mass.							
Stat. Auto.	4	4	4	4	4	4	
Mich.							22
Miss.			9		14	18	
Mo.	5	7	7	7	7	7, 19	7, 20
N. H.							
Auto. Liab.	4	4	4	4	4	4	
N. J.			8	11	4	16	
N. Y.			8			18	
N. C.	4	4	4	4	4	4	
Ohio							20, 24, 25
Okla.							20-23
Penn.							20-22
P. R.			10	11	4	18	
Tenn.			9	11	4		
Tex.							
Auto. Liab.	6	4	4	4	6	4	
Other Cas.			9	4	15		
Wash.				4			26
W. Va.							27
Wyo.				4		4	

1. "to past experience within the state and without the state when necessary, and . . . to prospective loss experience within and without the state when necessary, over such period of years as appears to be fairly representative of the frequency of the occurrence of the particular risk."
2. "Consideration shall be given, to the extent applicable, to . . ."
3. Reference to past and prospective loss experience and other relevant factors outside the state is modified by "if necessary, in order to establish a reasonable, adequate and not unfairly discriminatory rate."
4. No reference.
5. As respects loss experience outside the state, "consideration may be given . . . to the extent appropriate."
6. "To insure the adequacy and reasonableness of rates the Commissioner may take into consideration experience gathered from a territory sufficiently broad to include the varying conditions of the risks involved and the hazards and liabilities assumed, and over a period sufficiently long to insure that the rates determined therefrom shall be just, reasonable and adequate, and to that end the Commissioner may consult any rate making organization or association that may now or hereafter exist."
7. "may" in lieu of "shall".
8. "to a reasonable profit."
9. "underwriting" omitted before "profit".
10. "to a reasonable underwriting profit."
11. "in the case of participating insurers, to policyholders' dividends." In Kansas, this is added to the standard phraseology.
12. Consideration "may" be given to dividends, etc.
13. Certified law copy reads "absorbed" for "unabsorbed."
14. "countrywide expense experience."
15. "to expenses of operation."
16. "to all factors reasonably related to the kind of insurance involved."
17. "including judgment factors."
18. "to all factors reasonably attributable to the class of risks."
19. "which the insurer or rating organization deems relevant."
20. "to physical hazards."
21. "to safety and loss prevention factors."
22. "to underwriting practice and judgment." In Michigan: "to underwriting practice, judgment." In Pennsylvania is added: "to the extent appropriate."
23. "to whether classification rates exist generally for the risks under consideration; to the rarity or peculiar characteristics of the risks."
24. "to the experience, or judgment, or both, of the insurer or rating organization making the rate, to the experience of other insurers or rating organizations."
25. See also note 17 under (d) below.
26. "In addition to other factors required by this section, rates filed by an insurer on its own behalf may also be related to the insurer's plan of operation and plan of risk classification."
27. "to such factors as expenses, management, individual experience, underwriting judgment, degree or nature of hazard or any other reasonable considerations, provided such factors apply to all risks under the same or substantially the same circumstances or conditions."

(c) Expense Provisions

"The systems of expense provisions included in the rates for use by any insurer or group of insurers may differ from those of other insurers or groups of insurers to reflect the requirements of the operating methods of any such insurer or group with respect to any kind of insurance, or with respect to any subdivision or combination thereof

for which subdivision or combination separate expense provisions are applicable."

Calif.	Omits the final clause, "for which . . . applicable."
D. C.	No reference.
Fla.	Add ". . . but this subdivision shall not be construed to require uniformity among all insurers with respect to the application of other subdivisions of this Section."
Kan.	As Fla. above.
Mass.	
Stat. Auto.	No reference.
N. H.	
Auto. Liab.	No reference.
N. J.	No reference. See (a) for sole reference to expenses.
N. C.	No reference.
Tex.	No reference.
Vt.	No reference.

(d) Classifications and Rating Plans

"Risks may be grouped by classification for the establishment of rates and minimum premiums. Classification rates may be modified to produce rates for individual risks in accordance with rating plans which establish standards for measuring variations in hazards or expense provisions, or both. Such standards may measure any differences among risks that can be demonstrated to have a probable effect upon losses or expenses."

<u>State</u>	<u>Partial or Total Omission</u>	<u>Different Phraseology</u>
Ala.		4, 5
Calif.		6
D. C.		7
Fla.	1	
Ind.	1	8, 9
Kan.	1	
La.		10
Me.		9
Mass.		
Stat. Auto.		11
Miss.	1	12
Mo.		13
N. H.		
Auto. Liab.	3	
Other Cas.		9
N. J.		4, 14
N. C.		
Auto. Liab.		15, 16
Other Cas.		16
Ohio		17
Okla.		7
Pa.		18
R. I.	2	19
Tenn.	1	
Tex.		
Auto. Liab.		20
Other Cas.	1	21
Vt.	3	

1. Third sentence omitted.
2. Second and third sentence omitted.
3. Entirely omitted.
4. Refer also to note 1 under (a) foregoing.
5. Every rating organization or insurer "shall, in rate-making, and in making rating plans . . . adopt basis (sic) classifications which shall be used as the basis of all manual, minimum, class, schedule or experience rates."
6. Additional, as follows: "Classifications or modifications of classifications of risks may be established based upon size, expense, management, individual experience, location or dispersion of hazard, or any other reasonable considerations. Such classifications and modifications shall apply to all risks under the same or substantially the same circumstances or conditions."
7. See note 24 under (a) foregoing.
8. Second sentence rephrased as follows: "Classification rates may be modified to produce rates for individual risks which are lower than those filed and which evaluate variations in physical or moral hazards, individual risk experience, or expense provisions."
9. See also note 25 under (a) foregoing.
10. Additional, as follows: "Rates may be established on the basis of any classification submitted by any insurer or group of insurers, provided such classifications are found to be reasonable."
11. Provision is included for "fair and reasonable classifications of risks."
12. The second sentence refers also to measurement of variations "in experience."
13. Additional, as follows: "Classifications or modifications of classifications or any portion or any division thereof, of risks may be predicated upon size, expense, management, individual experience, purpose of insurance, location or dispersion of hazard, or any other reasonable considerations, provided such classifications and modifications shall be applicable to the fullest practicable extent to all risks under the same or substantially the same circumstances or conditions. Classification rates may also be modified to produce rates for individual or special risks which are not susceptible to measurement by any established standards."
14. The only provision is as follows: Every rating organization or insurer shall "(a) adopt basic classifications, which shall be used as the basis of all manual, minimum, class, schedule, experience or merit rates; (b) adopt reasonable standards for construction, for protective facilities, and for other conditions that materially affect the hazard or peril, which shall be applied in the determination or fixing of rates."
15. The North Carolina bureau has among its functions "to maintain rules and regulations and fix rates for automobile bodily injury and property damage insurance and equitably adjust the same as far as practicable in accordance with the hazard of the different classes of risks as established by said bureau."
16. See also note 8 under (a) foregoing.
17. Additional, as follows: "Special filings may be made at any time with respect to any individual or special risks whose size, classi-

fication, degree of exposure to loss, previous loss experience, or other relevant factors call for the exercise of sound underwriting judgment in the promulgation of rates appropriate to such individual or special risks."

18. See also note 30 under (e) below.
19. See also note 8 under (e) below.
20. ". . . nothing in this Act shall be construed to prohibit the modification of rates by an experience rating plan designed to encourage the prevention of accidents and to take account of the peculiar hazards of individual risks, provided such plan shall have been approved by the Commissioner; and provided further that only one such plan shall be approved for each form of insurance hereunder."
21. Second sentence includes reference to the provisions under (b) foregoing.

(e) Rate Filings

- 1) "Every insurer shall file with the commissioner every manual of classifications, rules and rates, every rating plan and every modification of any of the foregoing which it proposes to use. Every such filing shall state the proposed effective date thereof, and shall indicate the character and extent of the coverage contemplated . . . A filing and any supporting information shall be open to public inspection after the filing becomes effective."
- 2) Filings may be made by a rating organization on behalf of a member or a subscriber.
- 3) "The commissioner shall review filings as soon as reasonably possible after they have been made in order to determine whether they meet the requirements of this Act." Subject to the exception specified in (e)-6 below, the commissioner has a waiting period of 15 days in which to consider the filing, which period may be extended by him for an additional period not to exceed 15 days upon proper notice to the filer. A filing is deemed approved unless disapproved by the commissioner within the waiting period or any extension thereof. This is the so-called "deemer" provision.
- 4) ". . . the commissioner may, by written order, suspend or modify the requirement of filing as to any kind of insurance, subdivision or combination thereof, or as to classes of risks, the rates for which cannot practicably be filed before they are used."
- 5) "Upon the written application of the insured, stating his reasons therefor, filed with and approved by the commissioner, a rate in excess of that provided by a filing otherwise applicable may be used on any specific risk."
- 6) "Any special filing with respect to a surety or guaranty bond required by law or by court or executive order or by order, rule or regulation of a public body, not covered by a previous filing, shall become effective when filed. . . ."

There are no exceptions to (e)-2; that is, filings may be made, in any jurisdiction where any filings at all are provided for, by a rating organization on behalf of a member or subscriber.

Other substantive departures from the Model Bill provisions are noted below:

State	<i>Exceptions</i>				
	<i>(e)-1 Filing Required and Confidential Until Effective</i>	<i>(e)-3 Review and Approval</i>	<i>(e)-4 Filing After Use</i>	<i>(e)-5 Rate in Excess of Normal</i>	<i>(e)-6 Special Filings</i>
Ala.	1	9	25	25	25
Ariz.		10, 11			
Calif.	2	2	2	2	2
Colo.		12			
Del.		11, 13			
D. C.	1	11, 14	25	25	25
Fla.	1	9	25	28	30
Ida.	3	3	3	3	3
Kan.	1	9	25	25	30
La.	4	4	4	4	4
Me.		11, 15			25
Mass.					
Stat. Auto.	4	4	4	4	4
Other Cas.		11, 15			25
Miss.		9	24	27	
Mo.	2	2	2	2	2
Mont.	5				
N. H.					
Auto. Liab.	1	15, 16	25	25	25
Other Cas.	1	15, 17			
N. J.	1	18	25	25	25
N. Y.		19			
N. C.					
Auto. Liab.	6	15, 16	25		25
Other Cas.	1	15, 16	25		25
Ohio		11, 20			29
Okla.	7	11, 14	26	28	
Ore.		11			
Penn.		11, 21			30
P. R.		10, 22			
R. I.	8				
S. C.		21			
Tenn.	1	9	25	25	31
Tex.					
Auto. Liab.	4	4	4	4	4
Other Cas.	1	21	25	25	32
Utah		10, 11			25
Vt.	1	9	25	25	25
Va.	7	15, 16			
Wash.	1	9	25		25
Wisc.		23			
Wyo.		11, 15			25

1. No provision as respects public inspection.
2. No filing required.
3. No filing required unless the commissioner upon review and hearing in 1953, or at some biennial date thereafter, shall determine that reasonable competition does not exist with respect to certain classes, whereupon provisions analogous to those in the Model Bill become applicable to such classes.
4. State supervisory authorities fix the rates. Hearing required in Mass.

5. Rating organizations must file. Commissioner may require insurers unaffiliated with rating organizations to file.
6. Rates are made and filed by statutory administrative bureau, but provision is made for deviation and (e)-5 filings by insurers.
7. Filings open to inspection when made.
8. Additional: ". . . provided, however, that classification rates may be modified without additional filing to produce rates for individual risks which are lower than those filed and which evaluate variations in physical or moral hazards, individual risk experience or expense provisions and which are not inadequate or unfairly discriminatory."
9. No waiting period. 30-day deemer.
10. 15-day waiting period, with no extension. No deemer.
11. Disapproval only after a hearing.
12. 20-day waiting period, with 20-day extension. With deemer.
13. No waiting period. Filing deemed approved unless disapproved.
14. Rates effective on filing or as specified in filing.
15. No waiting period. No deemer.
16. Prior approval necessary.
17. Commissioner may suspend filing for 30 days pending investigation as to whether it meets requirements of the Act.
18. No waiting period. 90-day deemer.
19. Prior approval necessary for motor vehicle insurance required by section 17 of the vehicle and traffic law and for surety bonds given in lieu of such required motor vehicle insurance.
20. Rates effective when filed.
21. 30-day waiting period, with 30-day extension. With deemer.
22. Prior approval necessary only on "insurance that may be required by any law of the Legislative Assembly of Puerto Rico and for surety bonds given in lieu of such insurance so required."
23. Additional: "A filing made by an insurer for a kind of insurance or subdivision thereof as to which such insurer is not a member of or subscriber to a rating organization shall be deemed to meet the requirements of this act unless disapproved by the commissioner after notice and hearing and findings made in accordance with the requirements of" the section on disapproval of filings.
24. "If the commission in its discretion shall determine that a filing is impractical or unnecessary as to a kind, class, subdivision or combination of insurance, it may by written order suspend the requirement of filing as to such kind, class, subdivision or combination until otherwise ordered by it."
25. No provision.
26. "Rates on risks which are not by general custom of the business or because of rarity or peculiar characteristics written according to normal classification or rating procedure and which cannot be practicably filed before they are used may be used without being filed. The Board may make such examination as it may deem advisable to ascertain whether any such rates meet the requirements of this Act."
27. "A rate in excess of that provided by approved filings may be used on any specific risk with the written consent of the insurance commissioner and the insured."
28. Approval not necessary.
29. See also note 16 under (d) foregoing.
30. Additional: ". . . any filing with respect to a contract or a policy covering any kind of risk or kind of insurance or subdivision thereof for which classification rates do not generally exist in the industry or which by reason of rarity or peculiar characteristics does not lend itself to normal classification of rating procedure

shall become effective when filed and shall be deemed to meet the requirements of this Act."

31. "Any such filing with respect to a fidelity, surety or guaranty bond shall be deemed approved from the date of filing to the date of such formal approval or disapproval."
32. "Any filing for which there is no approved rate shall be deemed approved from the date of filing to the date of such formal approval or disapproval."

(i) Deviations

Any member of or subscriber to a rating organization "may make written application to the Commissioner for permission to file a uniform percentage decrease or increase to be applied to the premium produced by the rating system . . . filed for a kind of insurance, or for a class of insurance which is found by the Commissioner to be a proper rating unit for the application of such uniform percentage decrease or increase, or for a subdivision of a kind of insurance (1) comprised of a group of manual classifications which is treated as a separate unit for rate making purposes, or (2) for which separate expense provisions are included in the filings of the rating organization." There is no waiting period except for that introduced by a 10-day notice of hearing to the rating organization, which may waive the hearing. Prior approval is required. Deviation filings are to be judged in general by same criteria as other filings (see (a) above). Approvals are effective for a period of one year unless terminated sooner by the Commissioner.

Exceptions

<u>State</u>	<u>Scope</u>	<u>Hearing</u>	<u>Approval</u>	<u>Waiting Period</u>	<u>Duration</u>
Ala.	1	10			
Ariz.		11	13	17	
Calif.	2				
Del.	3		14		
D. C.	4	10, 12			21
Fla.	1				
Ind.	5				
Kan.	6				21
Mass.					
Stat. Auto.	2				
Mich.			15		
Miss.	1				
Mo.	2				
Mont.					21
N. H.					
Auto. Liab.	2				
N. J.	7	10			21
N. C.					
Auto. Liab.	8	11			
Other Cas.	9	10			21
Ohio			13, 14, 16		21
Okla.	4	11	13	17	21
Penn.		11	13	18	
R. I.		11	13	19	
Tenn.	1				22
Tex.	2				
Vt.	8	10			21
Wash.	9	11	13	19	21
Wisc.			13, 14	20	

1. Only "for a kind of insurance or for a subdivision or combination thereof for which . . . the supervisor has approved the application of separate expense provisions." (Mississippi: "kind, class or classes".)
2. No provision.
3. For "any kind of insurance, or class of risk within a kind of insurance, or combination thereof."
4. Only restriction is that deviation must be uniform in its application and not inconsistent with the Act.
5. "increase" in lieu of "decrease or increase".
6. For "a kind of insurance, or for a subdivision or combination thereof."
7. For "a particular kind or kinds of insurance."
8. Only restriction is that deviation must be uniform "in its application to all risks in the state of the class to which such deviation is to apply."
9. No restriction as to scope, except that of filing from which deviation is requested.
10. No time limit on notice of hearing.
11. No provision relating to a hearing in advance.
12. Provision for hearing if approval not granted in 30 days.
13. No approval required.
14. Specific provision that disapproval not be applicable to outstanding policies to which the deviation was applied.
15. The standard provisions are included, but alternative provisions are set forth in another section, to the effect that a deviation may be filed and become effective on filing and that any disapproval must be within 30 days of the requested effective date, and shall not be applicable to outstanding policies to which the deviation was applied unless disapproval is based on violation of basic criteria (see (a) foregoing).
16. Disapproval only after a hearing on 20-day notice, as on other filings. Superintendent may request supporting information.
17. 15 days.
18. 30 days, but Commissioner may approve earlier.
19. 30 days.
20. 15 days with possible 15-day extension, but Commissioner may approve earlier.
21. No time limit on duration of the deviation.
22. For "a period of not less than one year."

(k) Exchange of Information

1. Interchange of Rating Plan Data. "Reasonable rules and plans may be promulgated by the Commissioner for the interchange of data necessary for the application of rating plans."

2. Consultation with Other States. "In order to further uniform administration of rate regulatory laws, the Commissioner and every insurer and rating organization may exchange information and experience data with insurance supervisory officials, insurers and rating organizations in other states and may consult with them with respect to rate making and the application of rating systems."

<i>State</i>	<i>Exceptions</i>	
	<i>(k)-1</i>	<i>(k)-2</i>
Ala.	1	4
Calif.	2	5
D. C.	2	2
Fla.	3	
Kan.	1, 3	4
Mass.		
Stat. Auto	2	2
Other Cas.		4
Miss.	2	2
Mo.	2	5
Mont.	2	2
N. H.		
Auto. Liab.	2	2
N. J.	2	2
N. C.	2	2
Okla.	2	2
Ore.		4
P. R.		4
R. I.		4
Tex.		
Auto. Liab.	2	6
Other Cas.	1	4
Wash.		5

1. "loss experience."
2. Omitted.
3. "after consultation with all insurers and rating organizations affected thereby" qualifies "promulgated."
4. "consult and cooperate."
5. Omits reference to Commissioner and insurance supervisory officials. In California reference is to "licensed rating organizations" and "admitted insurers."
6. See note 6 under (b)-5 for consultation with any "rate making organization or association."

(l) Recording and Reporting of Loss and Expense Experience

For convenience in reference the five sentences in the Model Bill phraseology have been noted here separately.

1. "The commissioner shall promulgate reasonable rules and statistical plans, reasonably adopted to each of the rating systems on file with him, which may be modified from time to time and which shall be used thereafter by each insurer in the recording and reporting of its loss and countrywide expense experience, in order that the experience of all insurers may be made available at least annually in such form and detail as may be necessary to aid him in determining whether rating systems comply with the standards set forth in Section —.
2. "Such rules and plans may also provide for the recording and reporting of expense experience items which are specially applicable to this state and are not susceptible of determination by a pro-rating of countrywide expense experience.
3. "In promulgating such rules and plans, the commissioner shall give due consideration to the rating systems on file with him and, in order that such rules and plans may be as uniform as is prac-

ticable among the several states, to the rules and to the form of the plans used for such rating systems in other states.

4. "No insurer shall be required to record or report its loss experience on a classification basis that is inconsistent with the rating system filed by it.
5. "The commissioner may designate one or more rating organizations or other agencies to assist him in gathering such experience and making compilations thereof, and such compilations shall be made available, subject to reasonable rules promulgated by the commissioner, to insurers and rating organizations."

State	<i>Exceptions</i>					<i>Other</i>
	<i>(l)-1</i>	<i>(l)-2</i>	<i>(l)-3</i>	<i>(l)-4</i>	<i>(l)-5</i>	
Ala.	1	1	1	1	1	15
Ariz.					11	
Calif.	1	1	1	1	1	16
Colo.	2				11	
Del.					11	
D. C.	1	1	1	1		
Fla.	3-6	1		1		
Ill.				10	11, 12	
Kan.	3-6	1		1		
Ky.					11, 13	
Mass.						
Stat. Auto.	1	1	1	1	1	17
Mich.				10	11	
Minn.					11	
Miss.	6	1				
Mo.	1	1	1	1	1	
Mont.	1	1	1	1	1	
Neb.					11	
N. H.						
Auto. Liab.	1	1	1	1	1	18
N. J.	1	1	1	1	1	19
N. Y.	7		1			20
N. C.						
Auto. Liab.	1	1	1	1	1	21
Other Cas.	1	1	1	1	1	22
Ohio	4, 5	1	1	10		
Okla.	1	1	1	1	1	
Ore.	6					
Penn.					11	23
P. R.	7	9	1		1	17
Tex.						
Auto. Liab.	1	1	1	1	1	24
Other Cas.	4, 6, 8	1		1	14	
Vt.	2					
W. Va.					11, 13	

1. Omitted.

2. The Commissioner "may promulgate" in lieu of "shall promulgate".

3. The clause "after consultation with all insurers and rating organizations affected thereby" is added.
4. The clause "reasonably adapted to each of the rating systems on file with him" is omitted.
5. No reference to expense experience in the first sentence.
6. Substitute "biennially" for "annually".
7. "Every authorized insurer shall annually file with the rating organization of which it is a member or subscriber, or with such other agency as the superintendent may approve, a statistical report showing a classification schedule of its premiums and losses on all kinds or types of insurance business to which this section is applicable, and such other information as the superintendent may deem necessary or expedient for the administration of the provisions of this article. The superintendent from time to time may prescribe the form of such report including statistical data conforming to established classifications."
"Statistical plans and rules shall be promulgated for the recording and reporting of expense experience on a countrywide basis."
8. Additional: "... after due consideration . . ."
Substitute: "... loss experience and such other data as may be required, in order that the total loss and expense experience . . ."
Substitute throughout: "rating plans" for "rating systems".
9. In lieu of countrywide expense experience provision is made for recording and reporting of expense experience on an "island-wide basis".
10. Fourth sentence adds that no company shall be required to report its experience on any basis or statistical plan which differs from that regularly employed and used in the usual course of such company's business.
11. In addition, no insurer shall be required to file its experience with an organization of which it is not a member or subscriber.
12. Companies not reporting to a statistical agency "shall report such experience to the Director". Such experience shall be deemed confidential but may be included in compilations with other experience.
13. Experience of individual insurers reported directly to the commissioner shall not be revealed by him except by court order although they may be included in consolidations with other experience. All compilations and consolidations shall be open to public inspection as well as available to licensed insurers and licensed rating and qualified advisory organizations.
14. In the fifth sentence reference to making compilations available to insurers and rating organizations is omitted.
15. A statistical report showing premiums and losses on the various kinds of insurance written shall be filed annually on or before July 1st with a statistical agency, and with the Alabama Department, "together with such other information as the bureau (i.e., Department) may deem necessary for the proper determination of the reasonableness and adequacy of rates". Such reports may be consolidated and filed by an agency. "Such data shall be kept and reports made in such manner and on such forms as may be prescribed by the bureau." Such reports to the Alabama Department shall be kept confidential.
16. "Every insurer, rating organization or advisory organization and every group, association or other organization of insurers which engages in joint underwriting or joint reinsurance shall maintain reasonable records, of the type and kind reasonably adapted to its method of operation, of its experience or the experience of its

members and of the data, statistics or information collected or used by it in connection with the rates, rating plans, rating systems, underwriting rules, policy or bond forms, surveys, or inspections made or used by it so that such records will be available at all reasonable times to enable the commissioner to determine whether such organization, insurer, group or association, and, in the case of an insurer or rating organization, every rate, rating plan and rating system made or used by it, complies with the provisions of this chapter applicable to it."

17. The commissioner "may at any time require any company to file with him such data, statistics, schedules or information as he may deem proper or necessary to enable him to fix and establish or secure and maintain fair and reasonable classifications of risks and adequate, just, reasonable, and non-discriminatory premium charges for such policies or bonds".
18. "Every insurance company . . . shall file with the insurance commissioner, individually or in collaboration with others, in such form as he may prescribe, its classification of risks and premium rates applicable thereto, together with a schedule or rating to be in use and such other statistical information as the commissioner may require."
19. "Every insurer shall file annually with the rating organization of which it is a member or subscriber, or with such other agency as the commissioner may approve at the request of such rating organization, or with the commissioner, if such insurer is not a member or a subscriber of a rating organization, a statistical report showing a classification schedule of its premiums and its losses on all kinds of insurance to which this act is applicable, together with such other information as the commissioner may deem necessary for the proper determination of the reasonableness and adequacy of rates."
20. Additional: "The superintendent shall have power, in his discretion, to prescribe by regulation, uniform classifications of accounts to be observed, and statistics to be reported by insurers and other organizations which are subject to the provisions of this article. He may also in his discretion prescribe by regulation, forms of reporting such data by insurers and such other organizations. Such classifications of accounts, and statistics to be reported and forms of reporting shall be reasonable and may vary with the kind or type of insurer or organization. No such regulation or amendment thereto shall be promulgated by the superintendent except upon notice and after hearing to all insurers and organizations affected thereby. Any regulation or amendment thereto shall be promulgated by the superintendent at least six months before the beginning of the calendar year in which the same shall take effect. Any regulation or order of the superintendent made under this section shall be subject to judicial review by any insurer or organization aggrieved thereby."
21. ". . . the commissioner of insurance is hereby authorized to compel the production of all books, data, papers and records and any other data necessary to compile statistics for the purpose of determining the pure cost and expense loading of automobile bodily injury and property damage insurance in North Carolina."
22. "Every insurer shall annually on or before October 1, file with the rating bureau of which it is a member or subscriber, or with such other agency as the commissioner of insurance may approve or designate, a statistical report showing a classification schedule of its premiums and losses on all classes of insurance to which this article is applicable, and such other information as the commis-

sioner may deem necessary or expedient for the administration of the provisions of this article."

23. Additional: "Such rules and plans shall not place an unreasonable burden of expense on any insurer."
24. "The Commissioner is hereby authorized and empowered to require sworn statements from any insurer affected by this Act, showing its experience on any classification or classifications of risks and such other information which may be necessary or helpful in determining proper classifications and rates, or other duties or authority imposed by law. The Commissioner shall prescribe the necessary forms for such statements and reports, having due regard to the rules, methods and forms in use in other states for similar purposes in order that uniformity of statistics may not be disturbed."

DISCUSSIONS OF PAPERS READ AT THE
NOVEMBER 17, 1950 MEETING

AUTOMOBILE ACCIDENT STATISTICS BY "AGE OF DRIVER"

L. W. SCAMMON

Volume XXXVII, Page 43

WRITTEN DISCUSSION BY J. A. MILLS

Mr. Scammon's paper on "Automobile Accident Statistics by 'Age of Driver'" is a valuable contribution to the Casualty Actuarial Society *Proceedings*. The figures lend factual support to the rate differentials by age of driver, and more importantly they are a challenge to the membership of the Society to uncover the basic causes of the differentials for the laudable purpose of promoting their elimination and thereby saving lives and property.

From an accident prevention standpoint, the accident rate per mile of driving is a more significant measure than is the accident rate per licensed driver. There is reason to believe that young and inexperienced drivers do not drive as many miles per year and, consequently, variations in the accident rate per licensed driver do not tell the real story. Statistics measuring the accident rate per licensed driver indicate that drivers under 18 have a better record than does the age group 18—24. This has been attributed to closer parental control, whereas lower mileage exposure is a more probable explanation.

In order to obtain at least a rough indication of the variations in the mileage accident rate by age of driver, the Kemper Insurance organization sent a questionnaire to all of its employees who are licensed to drive cars. This questionnaire asked each employee to provide an estimate of the annual mileage of all licensed drivers in the family by age of driver. The responses provided mileage information on 2,903 licensed drivers, and summarization of the information disclosed the following variations in annual mileage by age of driver:

<i>Age Group</i>	<i>Number of Drivers</i>	<i>Total Annual Mileage</i>	<i>Average Annual Mileage Per Driver</i>
Under 20	112	327,000	2,900
20—24	342	2,177,000	6,400
25—29	493	4,601,000	9,300
30—39	797	8,406,000	10,500
40—49	645	6,365,000	9,900
50—54	246	2,418,000	9,800
55—59	147	1,402,000	9,500
60—64	68	615,000	9,000
Over 64	53	304,000	5,700
All ages	2,903	26,615,000	9,200

Through the use of the available information from various states of the breakdown of licensed drivers by age groups, the following estimated country-wide distribution by age of all United States licensed drivers was obtained:

<i>Age Group</i>	<i>Number of Drivers</i>
Under 20	5,392,000
20—24	7,852,000
25—29	7,852,000
30—39	13,192,000
40—49	9,475,000
50—54	3,246,000
55—59	2,251,000
60—64	1,519,000
Over 64	1,571,000
All ages	52,350,000

The mileage information obtained by means of the Kemper organization's questionnaires was applied against the foregoing distribution of drivers by age. The sum of the products produced a countrywide total mileage for passenger cars of 447 billion miles. This figure exceeded the National Safety Council's estimate of the 1949 passenger car mileage by 33%. A logical explanation for the difference is that—(a) the drivers responding to the questionnaire were predominantly city drivers, and the annual mileage of city drivers averages 25% more than does that of rural drivers, and (b) those responding to the questionnaire include a disproportionate share of persons using their cars for business purposes, and their annual mileage is higher than that of the average licensed driver. In order to reproduce the National Safety Council's estimate of the annual passenger car mileage, the Kemper organization's mileage figures were reduced proportionately under each age bracket. This was done with the hope that the adjusted figures would come reasonably close to reproducing the true annual mileage in each age bracket.

These figures then were divided into the countrywide fatalities and accidents by age bracket in order to secure mileage fatality and accident frequency rates by age.

The necessarily crude statistical results that were obtained from this approach are given in Appendix "A". It will be observed that the fatality rate per mile of licensed drivers under 20 is 3.8 times as great as that of drivers in the 30—55 age bracket, and that the accident rate per mile is 2.7 times as great for drivers under 20 as for drivers in the 30—55 age bracket. The fatal accident frequency rate per mile is 3.0 times greater for drivers over 65 years of age than for drivers in the 30—55 age bracket, and the accident rate per mile is 2.4 times greater for drivers over 65 than for drivers in the 30—55 age bracket.

The study does not answer the pertinent question of whether age or inexperience is the predominant cause for the relatively bad record of teen-age drivers. It would be interesting to compare the fatality and accident record during the first 10,000 miles of driving of drivers who learned to drive after age 20 with drivers who learned to drive before age 20.

In any event, the crude statistics provide a potent argument for teaching our young people the skills of handling a car, and more importantly the grave moral responsibilities that must be shouldered by drivers, young and old, who have decided to exercise their right to drive a car.

APPENDIX "A"
MILEAGE BY AGE OF DRIVER

Age Group							<i>Driver Involvement in Accidents—1949</i>			
							<i>Fatal Accident Per 100 Drivers Mill. Miles</i>	<i>Number of Accident Drivers</i>	<i>Accident Per 100 Drivers Mill. Miles</i>	
Under 20	5,392	2,900	15,637	2,200	11,752	3,370	28.7	1,100,500	9,360	
20—24	7,852	6,400	50,253	4,800	37,769	8,040	21.3	3,022,500	8,000	
25—29	7,852	9,300	73,024	7,000	54,884	7,290	13.3	2,790,000	5,080	
30—39	13,192	10,500	138,516	7,900	104,107	8,900	8.5	3,859,500	3,710	
40—49	9,475	9,900	93,803	7,500	70,501	4,340	6.2	2,371,500	3,360	
50—54	3,246	9,800	31,811	7,400	23,909	1,640	6.9	744,000	3,110	
55—59	2,251	9,500	21,385	7,100	16,073	1,310	8.2	573,500	3,570	
60—64	1,519	9,000	13,671	6,800	10,275	1,010	9.8	465,000	4,530	
Over 64	1,571	5,700	8,955	4,300	6,730	1,500	22.3	573,500	8,520	
All Ages	52,350	9,200	447,055	6,900	336,000	37,400	11.1	15,500,000	4,610	
30—35	25,913	10,200	264,130	7,600	198,517	14,880	7.5	6,975,000	3,510	

NEW YORK STATUTORY DISABILITY BENEFITS LAW,
 COVERAGE, RATES AND RATING PLANS

M. J. SCHWARTZ

Volume XXXVII, Page 57

WRITTEN DISCUSSION BY J. H. ROWELL

The description of the coverage and rate making concepts under the New York Disability Benefits Law have been excellently portrayed in Mr. Schwartz's paper. I can agree with and commend to students of this subject nearly everything he states and hence must confine this discussion to possible refinements and a few additional ideas.

The first point I want to make has to do with the rate *base*. Among the possible exposures mentioned by Mr. Schwartz are:

1. Aggregate weekly indemnity benefits.
2. Disability Benefits Payroll (first \$60.00 of earnings per week).
3. Workmen's Compensation Payroll (first \$100.00 of earnings per week excluding overtime bonuses).
4. Federal Social Security Payroll (first \$3600 of earnings during the calendar year).
5. Unemployment Insurance Payroll (first \$3000 of earnings during the calendar year).
6. Number of employees.

Mr. Paul Dorweiler has described the criteria of the best exposure medium for any line of insurance as follows*:

- (A) The magnitude of the medium should vary with the hazard, when the hazard is measured by the amount of the losses.
- (B) The medium should be practical and preferably already in use for other purposes.

I have arranged the above six possible exposure units in the order that I consider most nearly approximates the first criterion namely, that which most nearly measures the amount of losses.

For voluntary (as opposed to compulsory) coverage, the aggregate weekly indemnity benefit is the base traditionally used. Although this base does not meet the criterion of being already in use for other purposes, it has been practical for voluntary coverage, where the employees may be divided into a relatively few salary or length of service classes, and the weekly benefit then made a fixed amount within each class. Under the Disability Benefits Law, however, the number of benefit classes is interminable because the weekly benefit is a percentage (50%) of the average weekly wage and subject to a minimum of \$10.00 and a maximum of \$26.00 per week. This fact suggests that the exposure medium might be the weekly wage itself, subject to a maximum of \$52.00 per week. Such a base, however accurate as a measure of losses, is not practical, because it is not already in use for any other purpose. The typical New York State employer even now has four sets of payroll figures to compute (enumerated as 2 through 5 above). Far be it my intention to suggest another!

* *Proceedings Casualty Actuarial Society*, Volume XVI, page 321.

The next most desirable base—the first \$60.00 of wages per week—is a fairly close approximation to the measure of hazard and it does have the advantage of being already in use for the purpose of determining the amount the employer may deduct from wages as the employees' share of the disability benefits cost. It is a better base than the first \$3000 (or \$3600) of calendar year wages because the latter are unstable for those employees whose yearly wage is in excess of the maximum: that is, too much of the exposure medium occurs in the early quarters of the year and too little in the later quarters. Furthermore, a calendar year payroll base, when initially determined, is subject to revision where an employee moves from one employment to another resulting in a "new start" on his \$3000 (or \$3600) with each new employer and consequently refunds have to be made during the next calendar year. For these reasons I believe the \$60.00 a week base is superior to the \$3000 (or \$3600) a year base.

The major disadvantage of the \$60.00 a week base is that the figures required by the Workmen's Compensation Board for assessment purposes—the first \$3000 of calendar year payroll (in 1950 the portion paid in the last 2 quarters)—are not automatically available and the insurance carrier has to make special provisions to obtain them.

This maze of definitions of payroll must confuse many small employers and cause no end of harassment to the larger employers. It is my private opinion that many employers simply give up and report the same figure on all occasions.

It would be most constructive if the Federal Social Security Board, the State Unemployment Agencies, the Workmen's Compensation Board and the National Council on Compensation Insurance could agree to a common limitation of taxable payroll to be used for the Federal Social Security contributions, State Unemployment Insurance taxes, employees' contribution for disability benefits and Workmen's Compensation Insurance payroll. This is probably too much to hope for, but it would be helpful if any two or three of these agencies could agree on a common definition.

Having decided on the exposure base to be used, the ratemaker is next confronted with the problem of considering other variables contributing to the amount of losses. Well defined statistics are not available in any great exactness with respect to sex and age. Any study by age without regard to sex is of doubtful value, and analyses by sex without regard to age are based on the hazardous assumption that age distributions do not vary by employer.

Hazardous though it may be to disregard age distributions, the several studies by sex—referred to by Mr. Schwartz indicate that the amount of disability to be expected among females is about twice as much as among males. But in all of these studies benefits were payable for disability caused by pregnancy. As Mr. Schwartz points out, it has been assumed that pregnancy has caused about half the extra disability among females and consequently this assumption calls for a rate charge of one and one-half times as much for female exposure as for male.

On this point I have made two studies which may be of interest.

The first was on Voluntary Group plans which provide maternity benefits and was based on \$2,000,000 of claim payments. In this study the six week maternity benefit was found to result in .16 weeks of disability per female

1951 PAYROLL SHEET FOR AN EMPLOYEE EARNING \$110 PER WEEK

Week of Calendar Year	Gross Weekly Wages	Federal Social Security Wages		New York Unemployment Insurance Wages		New York Workmen's Dis- ability Insurance Wage		Com- pensation Insurance Wage	SS Tax Deduct	DB Ins. Deduct
		Weekly	Cum.	Weekly	Cum.	Weekly	Cum.	1½% of (2)	1½% of (4)	
	(1)	(2)	(2A)	(3)	(3A)	(4)	(5)	(6)	(7)	
1	110	110	110	110	110	60	100	1.65	.30	
2	110	110	220	110	220	60	100	1.65	.30	
.										
27	110	110	2970	110	2970					
28	110	110	3080	.30	3000	60	100	1.65	.30	
29	110	110	3190	0		60	100	1.65	.30	
30	110	110	3300	0		60	100	1.65	.30	
31	110	110	3410	0		60	100	1.65	.30	
32	110	110	3520	0		60	100	1.65	.30	
33	110	80	3600	0		60	100	1.20	.30	
34	110	0		0		60	100		.30	
35	110	0		0		60	100	0	.30	
.										
52	110	0		0		60	100	0	.30	
TOTALS	5720		3600		300	3120	5200	54.00	15.60	

From this Exhibit it is apparent that the most practical solution of the employer's bookkeeping problem would be for the Federal Social Security Board and the State Unemployment Division to establish weekly maximums as substitutes for calendar year maximums. This would do away with the necessity for the cumulative columns (2A) and (3A) as well as eliminate the necessity for refund adjustments when an employee works for more than one employer during a calendar year.

life year exposed. It should be noted that the amount of disability is independent of the number of days of waiting period and the limiting number of weeks of benefits for non-maternity disabilities and hence it would seem that the appropriate method to obtain pure premiums for female exposures would be to obtain the proper female pure premium for the plan including maternity benefits and deduct the constant of .16 weeks per life year.

The second study was on the Disability Benefits Law experience and was based on \$220,000 of settled claims.

In both studies the conclusion was reached that on an 8 day waiting period, 13 week plan, excluding maternity benefits, female employees have about one and three-quarters as much disability as males. The final word has yet to be said on this subject, however, because in neither of the studies were the age exposures known.

I have attached an exhibit containing the payroll figures each New York State employer must compile to meet his present various requirements. The purpose of the exhibit is to show the essential elements of the computations, although there are short cut methods which may be developed.

EXCESS LOSS RATIOS VIA LOSS DISTRIBUTIONS

D. R. UHTHOFF

Volume XXXVII, Page 82

WRITTEN DISCUSSION BY EDWARD S. ALLEN

The development of excess loss charges is a somewhat perplexing problem due to the sparseness and instability of the available experience. Mr. Uthoff's paper describes a unique but practical approach to this problem.

Only one minor criticism is apparent. The retrospective premium formula in the first paragraph provides that claim expense will be charged in the same manner as losses are charged. Since in Plan D there is no lower limit to the loss conversion factor, some or all of the claim expense may be included in the basic premium.

Mr. Uthoff properly suggests that the method he describes might contribute to solutions of excess rating problems in general. He also mentions briefly the variation in excess hazard between individual risks. This immediately suggests an extension of this method by developing ratios to total losses of death, permanent total and major permanent partial losses for each classification for use in Table II. Substantial difficulties would be encountered in the development of such ratios, particularly if the experience of more than one state is to be used, but this procedure seems worthy of consideration for any state in which the excess loss charge is a substantial portion of the premium.

EXCESS LOSS RATIOS VIA LOSS DISTRIBUTIONS

D. R. UHTHOFF

Volume XXXVII, Page 82

WRITTEN DISCUSSION BY ROGER A. JOHNSON

Mr. Uthhoff's paper gives in some detail the method used by the National Council on Compensation Insurance for determining insurance charges by state for the limitation of losses in retrospective rating.

In New York, losses had been limited to \$10,000 per claim since the introduction of retrospective rating. The New York table of excess pure premium ratios, used in the determination of insurance charges, were based on data with losses limited to \$10,000, so that no further adjustment was necessary. With the introduction of Plan D on December 31, 1949, and the desire for combination with "unlimited" National Council states, it was necessary to use a single table of excess loss ratios (Table M), and provision for the New York loss limitation was accomplished by reducing the permissible loss ratio. New York, contrary to most other states, has sufficient volume so that up-to-date loss tabulations can be used to determine the proper charge for excess losses.

In many of the National Council states, because of lower benefit levels, there had been no particular need for loss limitation. The National Council, however, adopted Item R-837 to be effective on September 1, 1950 providing for the election by certain sized risks of limitations on a per accident basis to \$10,000, \$15,000 or \$25,000. Failure to elect any limitation automatically provides for the use of losses without limit.

Since, in most states, the available data on excess losses is too thin to have much value per se, the method outlined in Mr. Uthhoff's paper was employed. That is, such data as were available were combined into a single group of tables, from which charges for excess losses varying by state were determined with due recognition given to state average values and distributions. The method, admittedly an approximation, appears to give results which are equitable as state-wide averages.

Other states having caught up with New York by the introduction of loss limitations (albeit on an elective basis), New York then took another step forward with the introduction of variation in charges by hazard group. An exhaustive study undertaken by a Subcommittee of the Actuarial Committee of the Compensation Insurance Rating Board resulted in the assignment of classifications to five hazard groups with charges for limitations of \$10,000, \$15,000 and \$25,000 per accident. This procedure was incorporated into the New York Retrospective Rating Plan effective October 1, 1950.

It is the writer's opinion that the National Council has taken a step in the right direction by adopting loss limitation in retrospective rating. It should now continue forward by adopting variation by hazard group. As Mr. Uthhoff points out in the conclusion of his paper, the underwriter may be misled into thinking he is getting an adequate premium for the loss limitation, whereas, that premium may be excessive or woefully inadequate, depending on the hazard group in which the risk would normally fall.

It is likely that the procedures which are the subject of Mr. Uthhoff's paper could be further refined to produce variation by hazard group.

THE COMBINED FIRE AND CASUALTY ANNUAL STATEMENT BLANK

THOMAS F. TARBELL

Volume XXXVII, Page 74

WRITTEN DISCUSSION BY H. O. VAN TUYL

When Mr. Tarbell wrote his original papers in 1929 on "Casualty Insurance Accounting and the Annual Statement Blank," the casualty blank had not changed in any important aspect in the previous twenty years. As respects the balancing of the increase or decrease in ledger assets through the Income and Disbursements statement this procedure had been adopted in 1896 and had become the essential and distinguishing feature of the casualty blank. This requirement had an all pervasive influence on the accounting procedures of practically all casualty companies.

In 1941 these two papers were revised by the author so that the references to items etc. might conform to the blank as then constituted. The principal changes in this 12 year period were the appearance of Schedule T and the elimination of Schedules J and K.

During the years 1941 to 1948 there was added Schedules M I-IV but as respects the form of statement the 1948 blank was the same as had been in use for nearly half a century. When one considers how entrenched this form had become and how closely it was tied in with the companies' accounting records, and further, how conservative most supervising departments are, it is quite remarkable that in spite of these obstacles the new combined blank for fire and casualty companies should have won approval in 1949 and become the official blank for the following year.

It was my privilege, as president of the Association of Casualty and Surety Accountants and Statisticians, to appoint in 1945 a committee of six accountants to meet with a similar committee of the (Fire) Insurance Accountants Association to consider the development of a revised form of annual statement blank. Mr. Tarbell as Chairman of our Uniform Accounting Committee was the logical leader of this group and became Co-chairman of the joint committee. While credit is due to every member of this committee for the cooperative pooling of ideas which followed, it is well known that the eventual success of the entire effort was due in large degree to his sound judgment and thorough knowledge of accounting principles aided by the exercise of unusual tact and perseverance.

The modernization of our annual statement blank marks a new era in insurance accounting and it is fitting that the individual who had a major part in bringing this about should prepare for preservation in our *Proceedings* both the history of the development of the annual statement blank and likewise the detailed description of the present blank as set forth in the paper under review.

The first section of the paper deals with Pages 1 to 3, the main Financial Statement, which in the new blank has been completely rearranged. This portion of the paper is entirely new and the changes between the 1948 and 1950 blanks are set forth in detail. Since many of the Exhibits and Schedules are

the same, much of the latter portion of the paper is a repetition of that set forth in his contributions of previous years.

The former "Underwriting and Investment Exhibit" was a means of overcoming the weakness of the old blank. With the establishment of a new blank developed on the accrual basis in accordance with modern accounting practice, it became unnecessary to continue this exhibit and no such caption or expression appeared in the original draft of a combined blank. It is unfortunate that the appearance of the finally adopted blank has to be marred by the redundant caption "Underwriting and Investment Exhibit" at the top of pages 4, 5, 6, 7, 8, 9, and 10. I understand this is done for the enlightenment of our Federal Internal Revenue Inspectors. Let us hope that when the Inspectors have become thoroughly familiar with the new blank, these unnecessary captions can be eliminated.

Another Exhibit which has been included to meet the views of certain supervisory officials is Exhibit 3 "Reconciliation of Ledger Assets". This seems to some to be in the nature of a useless appendage and perhaps this also may in some future day be subject to suitable surgical treatment.

The adoption or the rejection of these suggestions will not materially affect the blank since the essential features of the revised statement are the use of the accrual basis, the elimination of statistical data from the main statement and the adoption of a single form for fire and casualty. Whatever minor adjustments are made in future years, it would seem that the basic structure will long endure as it is based upon firmly established accounting principles and practice.

Students of the new blank will have reason to thank the author of the paper under review for the concise but complete description of the new financial statement and the make up of the various exhibits and schedules. The task has been well performed and the result is a valuable contribution to our *Proceedings*.

THE COMBINED FIRE AND CASUALTY ANNUAL STATEMENT BLANK

THOMAS F. TARBELL

Volume XXXVII, Page 74

WRITTEN DISCUSSION BY JOHN R. LANGE

Mr. Tarbell's papers on the combined fire and casualty annual statement blank for business of 1950 record in his Introduction (Vol. XXXVII, Part I, Page 74) the historical development of the final product. This permanent record is of great value to the students of state supervision and company examination procedures. In his timely paper (Vol. XXXVIII, Part II, Page 113) on the new financial statement, exhibits and schedules, he clearly weaves the items of the old blank into the new, which gives the reader an "at home" feeling and the confidence that nothing has been omitted or sacrificed in adopting the new form. Like a cardiograph, it records that chapter in the history of the blank when the insurance industry was pulsating under the changes brought about by Uniform Accounting and Multiple Line Under-

writing. And last, but not least, the tracks of "intent" are preserved which is always important.

The reaction of the public to the new presentation of financial condition and results of operation may not as yet have been fully tested. Another year or two will complete the story as to that. The transition did not or may not produce the jar that was anticipated. The life insurance policyholders who receive more annual financial statements and are more statement conscious will be tested in 1952. It is customary for Wisconsin Governors to have an annual conference with each department head. This writer was interviewed a few weeks ago. One of the first questions asked by the Executive's financial secretary (an experienced accountant borrowed from the Department of Taxation) was, "When will these insurance companies put out understandable financial statements?" The writer had with him the combined form and the 1951 life form and brought the secretary up to date.

Multiple writing power laws are effective now in all but one or two states. The combined fire and casualty blank fills an important need and becomes the required tool for the reporting of multiple lines. The fire insurance examiner must also become a casualty man and vice versa. The line of demarcation as between the fire and casualty business and personnel is fading. Annual reports of the state insurance departments are gradually going through a changing process and the so-called casualty section and fire section of such reports will eventually disappear and such reports no doubt will be divided according to primary and secondary lines of business regardless of whether the companies were originally incorporated as a fire company or a casualty company. Tax laws need revision so that a company will not pay one rate on fire premiums and another rate on casualty lines. Agents' license laws in some states need revision so that an agent may write a fire risk and workmen's compensation risk under one agent's license.

There has been a demand among state insurance departments for a check list or audit procedure on annual statements. Mr. Tarbell's paper, which first covers pages 2, 3 and 4 of the new blank and then all of the exhibits and schedules, is the answer to this demand and should also serve as a guide for the zone examiner to use. The discussion on the various supporting schedules giving alternative ways to handle the various account items was particularly fine, bringing up to date the currently accepted usages of these supporting schedules. His paper might well be used as an appendix to the Manual of Convention Examination Practice and Procedure adopted by the National Association of Insurance Commissioners, revised in December, 1950. It is hoped that reprints of the paper will be widely distributed among the supervisory offices of all states.

The supplementary worksheet to Schedule P for the derivation of Item 16, page 3, and the related items on page 9, is an examiner's timesaver and of value in the auditing of part of the Insurance Expense Exhibit. It was very thoughtful to have added the worksheet to his paper.

State officials, their deputies and examining staff, and the industry which Mr. Tarbell represents are very much indebted to him and should now begin to pray for another angel from the life companies who would prepare and distribute a similar paper on the 1951 life blank.

AUTHOR'S REVIEW OF DISCUSSIONS
THOMAS F. TARBELL

The complimentary discussions submitted by Messrs. Lange and Van Tuyl present no areas of disagreement. However, a few words of explanation on Mr. Van Tuyl's comments on the Underwriting and Investment Exhibit may be clarifying.

Mr. Van Tuyl is correct in his statement that in the original draft of the Blank the caption "Underwriting and Investment Exhibit" did not appear on Pages 4-10. The caption seemed to be unnecessary from the standpoint of a blank designed to produce operating results of Fire and Casualty Companies. However, it was subsequently decided that in view of the fact that Section 204 of the Internal Revenue Act makes specific reference to the "underwriting and investment exhibit of the annual statement approved by the National Convention of Insurance Commissioners", such exhibit should be identified in the Statement. While it is possible that the inclusion of the caption on Page 4 only would have met the situation, it was deemed advisable to include it on the other pages mentioned since some of the data appearing on Pages 5-10 of the new blank were incorporated in the Underwriting and Investment Exhibit of the superseded blank.

As respects Exhibit 3, "Reconciliation of Ledger Assets", the Committee which developed the Blank was in agreement with Mr. Van Tuyl's thoughts. However, this, as indicated by Mr. Van Tuyl, was a matter beyond the control of the Committee.

PROCEEDINGS

November 16, 1951

THE GATEWAY TO MEMBERSHIP

PRESIDENTIAL ADDRESS BY HARMON T. BARBER

It seems as though these remarks should be prefaced with a note of apology for the subject which has been selected or rather for the subject which has not been chosen. The recent broadening of our Constitution as an invitation to the rate making experts of Fire insurance to join with us in the common endeavor to improve the arts and sciences of rate making, statistical reporting, company administrative practice and allied actuarial pursuits for all lines of insurance other than Life insurance, strongly suggests that the present would be a particularly appropriate time to review problems in this new area. However, the writer is not qualified by training or experience to set down significant comments on these matters in relation to Property insurance and, consequently, the presentation of papers on this interesting subject must be left as a task for others to perform.

Your President has an opportunity in these opening remarks at each meeting to offer personal ideas and opinions in much the same vein as an editorial writer on the staff of a daily newspaper might treat with a subject of general and current interest. Thus I feel emboldened to acquaint you with a few thoughts which have been running through my mind on the subject of the annual examinations of the Society, particularly the composition of the syllabus of examinations.

The syllabus of examinations presents an outline or schedule of the subjects which are included in each of the several parts of the examinations. The syllabus probably should not remain fixed as to content for any extended period of time but should be subject to gradual and possibly continual modification, so that eventually there may be evolved an examination system which will represent the best possible compromise of many different and controversial points of view. There are many differences of opinion regarding the purpose and the subject matter of the examinations, as this is a field in which our collective thinking has failed to find accord except possibly for a few scattered groups of members who may find themselves in agreement, at least temporarily. And so, at the risk of being labeled a heretic or iconoclast or something worse by some who will disagree with my particular observations, I have the temerity to offer a few personal comments in the spirit of constructive criticism, although actually they may serve merely to add to the disorganization of thought on the subject.

The first examinations of the Society were held in October 1915 and in the back part of Volume I of the *Proceedings* will be found the original syllabus of examinations. A condensed list of the subjects "for the examinations leading to enrollment as Associate" as they appear in this early syllabus follows:

PART I

1. Elementary Algebra.
2. Elementary Plane Trigonometry.
3. Elementary Plane Analytical Geometry.
4. Double Entry Bookkeeping.

PART II

1. Advanced Algebra.
2. Elementary Differential and Integral Calculus.
3. Elementary Calculus of Finite Differences.
4. Theory of Probability and Least Squares.

PART III

1. Compound Interest and Annuities Certain.
2. Theory of Statistics.
3. Elements of Theory of Life Annuities and Life Assurances.
4. Elements of Economics.

PART IV

1. Practical Problems in Statistics.
2. Policy Forms and Underwriting Practice in Casualty Insurance.
3. Practical Problems in Insurance Accounting and Statistics, Annual Statements.
4. Insurance Law.

Those who are familiar with the current syllabus will recognize that all of these subjects, with the exception of algebra, trigonometry, analytical geometry, and bookkeeping have been retained either as requirements for Associateship or as parts of the Fellowship section of the syllabus. There has been very little substantive change in the requirements in the thirty-six years of existence of the examinations. The additional material in the present syllabus relates principally to rate making and risk rating, subjects which were largely in the embryonic stage when the original syllabus was established. It would seem, therefore, that the present syllabus at least can be termed "traditional" if we choose to avoid the stronger but possibly more appropriate characterization of "antiquated."

This tendency to depart very little from original content lends interest to the circumstances which may have affected the design of the original examination syllabus of 1915. There is no complete record of the thoughts and decisions which influenced the committee which drew up the original syllabus. If one were to conjecture on its origin he might suspect that it followed the pattern of the syllabus of other actuarial societies existing at the time and which were concerned with the science of Life insurance. These, in turn, may have drawn their design largely from contemporary practice in British actuarial circles. It is quite possible British practice of the time was a reflection of still earlier programs of colleges and universities in their requirements for academic

degrees. This trail of thought, inaccurate though it may be, has led back to the gaslight era, to the days when college undergraduates wore bowler derbyies and turtle-neck sweaters. It is trite to say that there have been many and substantial changes in higher education since that time. The number of college graduates in this country has increased to the point where college degrees are now more common than high school diplomas were then. College curricula have changed materially in the variety of subject matter offered for study and in place of a standard set course of study leading to a bachelor's degree, a student in the typical liberal arts college has a wide choice of subjects to pursue. Presently, more than half of the content of the customary four-year college course is elective and students may attain an identical degree by following courses of study which are widely dissimilar. Thus, while the mainstream of higher education has rolled merrily on its way, the educational requirements of this Society have remained in a comparative backwater. Is it not time to critically re-examine our syllabus and make some overdue adjustments in its structure and content?

The examinations function as the principal avenue leading to membership in the Society. What is their basic objective? Are the examinations designed primarily to test the candidate as to his knowledge of certain subjects considered to be of common use in the practice of actuarial science? Are they designed to test the determination and ambitiousness of the candidate and his ability to discipline himself to a rigorous schedule of preparation which requires many hours of spare time study? Are they designed to bestow upon the successful candidate an academic award for achievement, such as might be inferred from the granting of the right to the designations A. C. A. S. and F. C. A. S.? Are the examinations designed to serve as comprehensive aptitude tests to discourage less competent applicants and thus to foster a more homogeneous membership with common interests, common understandings, and a common minimum of ability? Perhaps you will agree that there is no single purpose which can be entirely isolated from others as the sole objective of the examinations and that there probably is some element of each one of these suggestions in their general purpose.

The mathematical sections of the examinations may have been set up originally with a view to requiring minimum standards of competence in subjects which presumably would be useful in actual practice. If this is true this objective has been overlooked for some years. For instance, the number of times in casualty actuarial work when the occasion arises to use finite differences or even calculus is extremely small, certainly not commensurate with the importance indicated by our present Associateship syllabus in which one-fourth of the subject matter is devoted to these subjects.

It might be that the mathematical subjects were intended to serve an entirely different purpose. Possibly they are included in the syllabus more as a training exercise to develop mental agility, accuracy in work and an appreciation for orderly and logical reasoning. Their purpose then may be likened to the close order drill in the basic training of a soldier. There is nothing in the practice of modern warfare which resembles the manual of arms and other exercises which the infantry soldier encounters in the early stages of his training. The precision, discipline, and teamwork which are developed by close order drill are unquestionably invaluable in the later

career of the soldier. If the mathematical subjects in the syllabus are intended to perform a corresponding function for the beginning actuary I should like to suggest that consideration be given to incorporating the subject of plane geometry as a substitute for one of the less utilitarian studies. Plane geometry seems to have particular value as an introductory or preparatory subject. The logical sequence followed in the proof of simple theorems in plane geometry suggests a desirable pattern to follow in the preparation of memoranda and actuarial reports. It has been found useful in interviewing prospects seeking to enter casualty actuarial work to rely on the candidates' record of success with this elementary subject as a simple indicator of aptitude. In the writer's opinion there is a correlation between the ability to solve original problems in plane geometry and qualities which are helpful to a successful career as a casualty actuary.

As a parallel suggestion prompted by the frequency of use, it might be desirable to reinstate algebra to the mathematical section of the syllabus, even if this could be arranged only by sacrificing a subject such as calculus. Proficiency in algebra seems to be decidedly more essential and practical than proficiency in calculus. There are some who will object to this suggestion and who will point out that to be proficient in the higher branches of mathematics a student must have become familiar previously with the more elementary subjects. This is quite true but is it necessary in setting up the syllabus of examinations to go far beyond the subject matter which seems to be sufficient for a useful career as a practicing casualty actuary?

Does the Society hope to gain prestige by maintaining examinations which indicate that newly admitted members have certain inherent abilities more appropriate as a prerequisite for membership in larger and older scientific societies? If such is the case, it would seem to be better to abandon this pretense and re-design the examinations so as to require candidates to be proficient in more practical subjects. This matter of the effect of examinations on public relations has been under discussion in the past and it is believed that the Examination Committee has definitely abandoned the practice of setting questions such as those in probabilities which deal with black and white balls in a bag or the chance of drawing a royal flush from a thinned out deck of playing cards. It is feared that such problems were regarded by the public as a pastime which confirmed the fact that actuaries are an odd group of characters. Such examination questions did very little to enhance prestige. In some respects the ability to juggle finite differences as reflected in our present examinations is of no more value even though vastly more mysterious to the uneducated. Casualty actuarial science has reached the stage where we can take a reasonable measure of pride in the exposition of theory and practice as contained in papers in the *Proceedings*. On them might be placed greater reliance for professional preparation. The breadth of subject matter which is included in the field of casualty actuarial science is so extensive that it appears quite unreasonable to expect a novice candidate to be versed in all its phases as well as in the large proportion of textbook material currently demanded by the syllabus.

Let us consider further the thought that the examinations constitute a basis for awarding academic distinction to successful candidates. Most of us choose to look upon admission to membership in the Society as a substantial attain

ment. Frequently it is a prerequisite to advancement in compensation and responsibility in company organizations. Mention has been made that college curricula have expanded materially in the variety of subjects taught and likewise in the flexibility of the requirements to be fulfilled in order to attain a baccalaureate degree. The Society examinations on the contrary have remained rather rigid and have contained little in the way of option or choice. It is only with the recent change in the Constitution that consideration has been given to providing options to any considerable extent. This was thought to be necessary because of the divergent interests which presently exist between persons engaged in casualty insurance as contrasted with property insurance. However, these differences probably are not greater than those which exist between some lines which have always been considered as casualty lines of insurance. Consider, for example, the divergence between Boiler and Machinery insurance, Personal Accident insurance, Suretyship and Automobile Liability insurance. These have very little in common. Upon reflection you will agree that these lines are decidedly dissimilar in many respects yet they are all included in the generic term, casualty insurance. If options or alternatives in examination questions are essential for proper integration of casualty and fire insurance, why should they not be advantageous in welding together some of the loosely connected lines of casualty insurance? May we not turn again to the colleges and take a lesson from their experience in introducing flexibility in the requirements for academic degrees and thus set up alternative elective examinations leading to membership in the Society.

The following suggestion might represent a possible improvement in the requirements for the grade of Associate membership. In place of there being only one set of examinations leading to the grade of Associate there might be several alternatives, possibly as many as four. For instance, one set might be designed primarily for the candidate who has not had practical experience in insurance work. The subjects for this section might be selected from among those which are covered by standard texts or by reference material readily available in many locations outside of insurance centers. The syllabus for this division might include:

PART I

Plane and Analytical Geometry.
Higher Algebra.

PART II

Probabilities.
Differential and Integral Calculus.

PART III

Compound Interest and Annuities.
Life Annuities and Life Contingencies.

PART IV

Elements of Statistics
Social Insurance, Old Age and Survivors Insurance, Unemployment Insurance.

The purpose of this schedule of examinations would be to provide a basis

for testing students to determine whether or not they have reasonable competence in subjects which have been considered traditionally as closely associated with actuarial work. It will be observed that in line with previous comments some elementary mathematical subjects have been substituted for finite differences.

Three additional alternative divisions or sections of Associate examinations might be established and so designed as to be of advantage to candidates who have had a minimum experience in company offices, particularly in actuarial, statistical, or accounting departments. In each of these sections the subject matter might be identical except that each section would relate to different lines of insurance. It would not be an unreasonable additional requirement to specify that candidates presenting themselves for examination under these sections be required to either (a) possess a bachelor's degree from a college or university of recognized standing, or (b) to present evidence of a specified period of experience in actuarial work. A requirement such as the first of these, might meet in part the expressed desires of certain members who have advocated that credit for academic courses successfully mastered in college be allowed in lieu of requiring the candidate to take the Society examinations.

One of these alternative sections could be for those candidates specializing in accident, health, group accident and sickness, and statutory disability insurance. A second section could be devoted to fire and property insurance and the third section could deal with miscellaneous casualty lines as formerly written by a typical multiple-line casualty company. For each of these three divisions the syllabus of study pertaining to the specified lines of insurance might be made up of:

PART I

Policy Forms and Rate Manuals.
Underwriting Practices.

PART II

Rate Making.
Reserves for Unpaid Losses, Unearned Premiums and Unpaid Expenses.

PART III

Company Statistical Records.
Mechanical Equipment.

PART IV

Accounting Practices.
Preparation of Annual Statements and Schedules.

Many of these subjects are touched upon in some part of the present syllabus but because of the variety of methods and procedures which apply to individual lines embraced by the phrase "lines of insurance other than Life" it would seem that it is impossible to cover them as intensively as might be desired in setting the examination questions under the present syllabus. The suggested system of specialization by lines of insurance might afford greater opportunities of this nature.

New subjects in the suggested schedule include rate manuals, company statistical records, annual statements and schedules, and mechanical equip-

ment,—matters with which the casualty actuary needs to be familiar. Time spent in the study of these is time well invested whether the candidate decides to continue his career as an actuary or to enter some other phase of the insurance business.

It might be anticipated under such a program for Associate examinations that the number of successful candidates in each annual delegation would be considerably larger than is the case under the present syllabus. This would be desirable as many of the additional Associates would come from the ranks of persons already affiliated with the industry. A strengthening and enrichment of the programs of our meetings could be expected to follow as a normal development.

Proceeding to the Fellowship examination syllabus, it might be advisable to adhere to a single schedule not far different from the present. In this instance the gaps created by switching certain subjects to the Associate division could be filled by placing greater emphasis on topics which have lately assumed greater importance in casualty actuarial science. The following is suggested:

PART I

Insurance Law and Insurance Economics.
State Regulation of Insurance.

PART II

Theory of Individual Risk Rating.
Practice of Individual Risk Rating.

PART III

Allocation and Assignment of Expenses.
Advanced Accounting Problems.

PART IV

Advanced Insurance Statistics.
Advanced Underwriting and Administrative Problems.

Note that the state regulation of insurance, individual risk rating, and expense studies have been given more weight in this suggested revision. The advisability of such a change requires little amplification. Since this Fellowship syllabus would in the future be extended to cover Fire insurance and other Property lines as well as the usual Casualty lines, it is expected that there would be some increase in the burden of preparation by candidates for the Fellowship examinations, unless a deliberate move were made to ease up in the degree of difficulty of the Fellowship questions. Personally, a change in this direction would not be viewed with disfavor although the percentage of successful Fellowship candidates to the total number of those sitting for these examinations in the past has been quite reasonable and does not indicate that such a change is imperative.

There are a few random thoughts on the conduct of the examinations which might not be out of place here. Consideration might be given to the practice of holding Associate examinations twice a year. If the suggestion of creating four separate sections were to be adopted it might be expedient to set the examinations for two of them in the Spring and the other two in the Fall. This would be particularly desirable if in the insurance sections credit for

parts passed were interchangeable. That is, for example, if Parts I and II Accident could be combined with Parts III and IV Miscellaneous Casualty to complete the necessary quota of credits for Associate membership. Such a program would possibly shorten the elapsed time required for an ambitious candidate to qualify as an Associate.

The Examination Committee might be urged to follow the practice more generally of repeating questions which have appeared on previous examinations. There is nothing reproachful in such a practice. The time will eventually arrive when it becomes necessary to borrow from the past, as each year adds a grist of new questions to the accumulation of problems which have already been used. It is recognized that the adoption of several alternative examination courses for Associateship will result in an increased burden upon the members of the Examination Committee. This need not be a deterrent as the Examination Committee can be enlarged numerically and the work divided so that each section is placed under the responsibility of several specialists in the lines involved, instead of requiring a few individuals to cover all lines of insurance other than life as is the present practice.

It is not expected that others will necessarily fall in line with the suggestions which are set forth here. Many of these thoughts originated from a personal opinion that our present examination system is antiquated, is not sufficiently flexible, and does not serve the Society at all well. It would not be difficult for some of us to name several outstanding personalities from among our business acquaintances who are thoroughly familiar with the practice of actuarial science, who may be actually serving the industry as members of various actuarial committees of rating organizations and who are not members of the Society. Likewise, at our meeting there will be found certain invited guests who consistently attend and who undoubtedly are deeply interested in the subject matter of the programs. Some of these are persons of pre-eminent standing in their particular field of activities. By their presence at these meetings they indicate that they seem to feel the need of the Society. Undoubtedly the Society could make good use of their talents and their abilities if they too were to become members. Furthermore, it seems certain that many of these will not attempt to gain admission to the Society via the examination route as it is presently maintained.

The wholesale admission of new members by election after recommendation by the Council is not the answer to this situation. There is grave danger that personal feelings and personal popularity might exert some influence and result in discriminations which are unfair. There are many who will agree with this sentiment and some may not be averse to a proposal which might make it possible for an insurance specialist to attain associate membership status by one of the optional courses previously suggested. This does not imply that there would be many persons who might be able to successfully pass the new Associate examinations without intensive study and without an extension of knowledge in fields associated with each candidate's particular forte. It is anticipated that under the suggested revision of the syllabus the examinations would not lapse into a perfunctory quiz, but rather, that they would continue to be an exacting rigorous test of the candidate's knowledge gained by individual research and study and possibly supplemented by training in the hard school of practical experience.

Perhaps you have had the same experience as the writer in being impressed with the situation of an actuarial novice who enters into this work later in life than usual, possibly after service in the armed forces or in some other business pursuit. It is a special hardship for him to return to textbook studies and it is not unusual for him later to fail to pass the mathematical subjects on the first attempt. Some of these subjects are only remotely related to his daily work and in the examinations he possibly encounters strong competition from active college undergraduates. Failure to pass could deal a resounding blow to his aspirations and the loss of a full year of professional advancement could be a discouraging setback. On the other hand, the opportunity to study subject matter which pertains to his daily work and to eventually achieve associate membership by an intensive review of practical subjects such as would be afforded by the suggested optional four-division system would indeed be a welcome blessing to one in these circumstances. The Society would not lose in the long run by unlocking the doors to membership to these men in the manner suggested, in fact, the Society probably would profit substantially by the infusion of new and enthusiastic members who some day may occupy leading executive positions in company organizations.

Aside from these sentimental aspects, a revised syllabus similar to that suggested would serve several of the objectives which were mentioned previously. It is probable that examinations set up in accordance with these recommendations could adequately test the candidate as to his knowledge of subjects in common use in the practice of actuarial science. The examinations could test his ambition and determination since adequate preparation would require substantial allotments of spare time. To successfully pass them could be a definite achievement. The examinations could screen out less competent candidates and thereby lead to a membership with a standard minimum of professional ability.

In conclusion, it might be appropriate to sound a warning note addressed particularly to prospective members who may be quick to acclaim the liberalization of examinations which might be expected to result from the adoption of some of these suggestions. It is quite improbable that many immediate changes will take place as drastic as those which have been mentioned. In our membership there are bound to be found all shades and variety of opinion. Others may feel that improvement in the examinations would follow from making them more severe. It would not be well, therefore, for the prospective candidate to decide to relax or postpone taking the examinations with the expectation that a less difficult program will soon be established. Even if some of the suggestions advanced were to be adopted, it is quite possible that under the new system the degree of difficulty of the examination questions would be at least as great as under the present syllabus.

The Educational Committee is now facing the task of a review and revision of the examination syllabus to provide for the introduction of fire and property lines of insurance in the subjects covered. The attention of the members of this committee is invited to these thoughts as the sincere expression of one member who feels that a more useful existence for the Society would follow from opening up new gateways to membership rather than from erecting still higher barriers on the walls surrounding our citadel. Perhaps there are others who will join in pointing out that in this direction lies the hope of a stronger, larger and more progressive Society.

PROBLEMS OF FIRE INSURANCE RATE MAKING

BY

L. H. LONGLEY-COOK

The purpose of this paper is to survey some of the problems facing fire insurance rate makers and to put forward some proposals for improving the methods at present employed.

OBJECTIVES OF FIRE INSURANCE RATE MAKING

The basic objective of rate makers is simply that the rates should be reasonable, both from the point of view of the insurer and the insured. From the point of view of the insurer, this means that the rates in the aggregate must be sufficient to provide for the payment of claims, expenses and taxation and leave an adequate margin for catastrophes and for profit. Where the rates are made by a Bureau acting for a number of insurers, the sufficiency must apply not only to the total aggregation of all the fire business transacted by all members of the Bureau, but also to the aggregation of the business transacted by any individual prudent member. At the same time, it is important for the insurer that rates in any class should not be excessive because the business may be lost to a competitor making its own rates on a more reasonable basis or offering exorbitant commissions. Unless these requirements are met, it is impossible to maintain a virile insurance market.

From the point of view of the insured, reasonable rates imply that he should not be required to pay more than a sufficient sum to cover the hazard involved, together with a reasonable charge for expenses, catastrophes and profits. What is a sufficient sum is not easy to determine in principle, let alone in an individual case. A large number of factors can be listed which probably affect the risk to at least some extent. They are sufficiently numerous so that it would be impossible to make statistically justifiable allowances for every one of them nor does the requirement of reasonableness demand this. A rating structure which is reasonable should not be so complicated that it becomes difficult or expensive to apply. Clearly, for classes involving small units, the application of the system must be as cheap as possible, while where a class has large individual premiums, greater expenses can be reasonably incurred to produce greater rating accuracy. It is worth noting that in life assurance, where rating has received the attention of actuaries since the inception of the business, the vast majority of lives are accepted at rates which involve only one factor, namely, age, although there are many other factors which are known to have some bearing on mortality. Fire rates can be considered reasonable if they take into account all major factors which affect the risk but ignore minor factors which would not in the aggregate cause more than a small variation in the estimated rate. What is a small variation is a matter of personal opinion, but anyway a variation of up to 20% should almost certainly be ignored. Further, the system employed should not produce rates which are anomalous one with another.

It will be seen that rates determined on this basis meet the usual statutory requirement—to be reasonable and adequate for the class of risk to which they apply, and not unfairly discriminatory.

RATE PROMULGATION

Speaking generally, each state has its own fire rating bureau which promulgates the fire rates for properties within the state. The rates for dwellings, small shops, etc., are usually promulgated in the form of "Class Rates". That is, the same rate is quoted for all properties of the same type and construction with similar fire protection in a particular area. For larger properties, rates are calculated individually as required. These rates are called specific or "Schedule Rates", because a schedule is used to develop the rate by a series of credits and debits to allow for the various favorable and adverse features of the risk.

STATISTICAL BASIS

For practical purposes, the only statistical data available in respect of fire insurance are the figures produced by the National Board of Fire Underwriters Actuarial Bureau. These figures show for each year the premiums written and losses paid. The figures are subdivided by state, construction (brick, frame or fire resistive), protection (protected or unprotected), and occupancy classification. There are at present 115 classifications, but the 6 largest classifications represent a total of 46% of the written premiums and the 28 smallest classifications together represent only 1% of the written premiums.

A large amount of fire business is written on a 3 year or 5 year term basis, so that in times of inflation, the premiums written in any year will be greater than the premiums earned. Steps have been taken so that in due course, data will be available on an earned premium, incurred loss basis.

It will be seen at once that these data, when earned premiums and incurred losses are available, are sufficient to determine whether fire rates are reasonable from the point of view of the insurer. They do not provide any justification for the individual rates, nor do they provide a means of checking the suitability of the classifications used.

FAULTS OF THE PRESENT SYSTEM

The principal criticism which has been leveled against the present system is that it is based very largely on judgment and there is no means of determining whether the individual rates are reasonable. It is well to recall that the present method, which has been developed over many years, has worked fairly well and there has been practically no criticism from the purchaser. While it is possible to point out faults in the system, it is more difficult to suggest in detail how the system can be improved.

However, now that insurance has been brought within the orbit of the anti-trust laws, it is not sufficient to claim that the system has worked well in the past. Nor is there much force in the argument that there has been no criticism from the purchaser. Fire claims are sufficiently infrequent to make it impossible for the normal purchaser to judge the appropriateness of the price he is paying by reference to his own experience. It is as well, therefore, to inquire, on the evidence of the data available, to what extent the present rating

system produces results which are reasonable from the point of view of the insured.

An examination of the loss ratios in the statistics of the National Board of Fire Underwriters Actuarial Bureau reveals marked variations in these ratios from group to group. It is, however, difficult in most cases to prove that the variations in any state may not be due to chance fluctuation. When the only figures available are premiums and claims, it is difficult to establish a credibility test for the loss ratio. Hence, the position often arises that a rating bureau is not justified in revising rates for a group showing a low or high loss ratio, because either its figures are not credible or it cannot measure the credibility of its figures. The nationwide figures may show that a certain class is generally rated too high (or too low), but because of the difference between the states in the rating structures employed, these figures do not provide any supporting justification for the revision of the rates in an individual state when the experience within the state, because of lack of credibility, is insufficient in itself to justify the revision.

An examination of a typical set of class rates shows that they can be broken down into a comparatively few "base" rates and a number of "rate differentials" by which the rate for one property can be obtained from that for a similar but not identical property. The same position holds in schedule rating, but the rate differentials are here more complex. In trying to determine the reasonableness of individual rates, careful consideration must be given to rate differentials. These are often sufficiently numerous and large to make the final rate very different from the base rates, in which case the reasonableness of the final rate will depend upon the reasonableness of the rate differentials. Nearly all rate differentials have been fixed entirely by judgment and lack any statistical support, but a few are open to some investigation. The two most obvious cases are the difference in rate between brick and frame buildings and the difference in rate between buildings and their contents.

The nationwide figures when subdivided according to construction indicate that overall the rate differentials for brick and frame construction are reasonable. A consideration of the building-contents rate differential produces rather a different picture. For simplicity, the discussion will be limited to residential risks where there is a classification division between dwellings and contents for a large volume of business. First, it is noted that contents differential differs from state to state. Pennsylvania can be taken as typical of the most usual pattern. For protected property, the yearly rate of premiums per \$100. of contents insurance is 4 cents greater than the yearly rate of premium for \$100. of building insurance. For unprotected property the contents rate is equal to the building rate. In western states, however, the contents rate is equal to the building rate for both protected and unprotected property while in the southeastern states there is a 5 cents difference for protected property and a 10 cents difference for unprotected property. It is most improbable that actual loss experience will vary from state to state in such a way as to justify these different patterns of rates.

When we come to try to determine what are suitable rate differentials, we are presented with the difficulty of estimating what the experience would be if some other rate differentials had been employed. It is unfortunate that class rate differentials are usually expressed as flat additions to the

base rate, while with the statistics available, only percentage additions can be handled with accuracy. A tabulation of the liabilities at risk would to some extent overcome this difficulty. However, in the case of the contents rate differential, it was found practicable to make reasonable estimates of the effect on the premium income of changes in the differential. Proceeding in this manner for each state separately, it is not very difficult to show that a percentage addition of 40% to the dwelling rate normally provides a reasonable contents rate differential if it is assumed that it is desirable to produce the same loss ratio for both dwelling and contents business. This is an appreciably larger rate differential than that used at present and it has an entirely different incidence from that of the rate differential actually used in the majority of states.

It is of interest to note that Harold C. Atkiss of the New York Insurance Department in Part I of his extensive study of Fire Insurance Rate Making writes:

“For a particular type of construction and a group or class of risks, the differential between contents rates and building rates should narrow as the hazard increases.”

While it is not intended to discuss here the truth of this statement generally, it is clear that statistical investigation shows it is false for dwellings.

To sum up, the rating structure used in fire insurance contains a large number of rate differentials which may by their cumulative action produce an unreasonable rate, even if the original base rate were correct. The rate differentials are not supported on any statistical data and no attempt is made to justify them. Judgment must play an important part in any insurance rating scheme, but good judgment requires the accumulation of good statistical records where possible and the fullest use of all knowledge available, whether statistical or otherwise.

RATE MAKING METHODS

It is comparatively simple to criticize the present fire insurance rating methods, but it is more difficult to make constructive proposals. It is tempting to say that fire insurance rate makers should adopt the more statistical methods used for some of the casualty lines, but this is a very superficial approach to the problem. The rate of premium for a protected dwelling may be as low as 8 cents per \$100, hence, if we ignore all partial losses and assume a loss ratio of 50%, this indicates that the dwelling will, on the average, burn down once in 2,500 years. Statistical methods suitable for casualty lines with high claim frequency are unlikely to be directly applicable to business with this very different type of experience.

Before making any detailed suggestions, it is advisable to clarify the problem of rate making by distinguishing between the three main methods which are commonly employed. The first method, which we shall call the statistical system, is not at present used in fire insurance, but is used in other classes of insurance. In this method, every rate has its own statistical support. When the rating structure is complex, it is impractical to provide statistical support for each rate or rate differential and overall statistical support for groups of rates is all that is possible. This method, which is used very extensively in fire insurance will be called the schematic system. The

third method, which we shall call judgment-rating, is used when the factors which must be taken into account are so complex that a schematic system cannot be devised. It is used chiefly in marine insurance, both ocean and inland, and in certain casualty lines. The rate maker naturally prefers the first method to the second and the second to the third, all other things being equal, but the controlling factor is the complexity of the problem in relation to the average size of the policy in the class. This immediately poses the question, is a statistical system practicable for fire insurance?

RESIDENTIAL BUSINESS

The residential class is sufficiently large to be considered separately and it is here that a statistical system is most likely to succeed. The National Board of Fire Underwriters Actuarial Bureau figures for 1949 show residential business has a premium income of \$425,000,000, of which nearly one-half represents the premiums for dwellings (buildings only). The schematic system used varies from state to state, some states are content to distinguish between two types of construction only—brick and frame; others have as many as six different types, each with its own rates, and in addition, provide debits and credits for certain constructional features. Again, some states have only four classes of protection, while others have many more. Some states have different rates for different areas of the country (zones). In rating residential risks, the individual premiums are small and any survey of the property would not be justified on the grounds of expense. It is therefore necessary to ignore a number of features which might affect the risk. For this reason, there is no advantage in trying to take into account factors, like the existence of a lightning rod, whose effect is less than that of other factors which have been ignored. It is considered that at least for dwellings in the residential class, there would be no difficulty in designing a rating system which would enable rates to be fixed on a statistical plan.

The rating structure for such a plan would involve no greater change in the present plans than is entailed in combining the features of a number of plans at present in use. The same plan, but not the same rates, should be used in every state, so that advantage could be taken of the experience of areas larger than individual states in determining rates where data would be otherwise inadequate. The plan would probably involve four classes of protection and two of construction. In order to establish the rates, statistical data, on an earned-incurred basis, would be required for each subdivision of construction and protection used in the rate structure, that is, 8 subdivisions instead of the present 4 (or 6, if we include fire-resistive buildings). It would be desirable to record the sums at risk instead of the premiums, so that pure premiums could be calculated. These pure premiums would be loaded for expenses in accordance with the method common in many casualty rating procedures. The extension of these proposals to cover other risks in the residential class—contents of dwellings, apartments, seasonal dwellings, etc.—would present no difficulty, provided the same measures of standardization suggested for the dwelling rate structure were used. For subdivisions with only a small amount of data, rates based on the nationwide experience, subject to a state experience differential, might be used.

GENERAL SUGGESTIONS

For practically all risks outside the residential class, a statistical system of rate making could not be used, but it is possible to put forward other suggestions for improving the present system. Since steps have been taken to provide data on an earned premium and incurred loss basis, this important improvement can be considered to be already adopted and need not be discussed further.

The rating system should be simplified so as to remove the less important rate differentials at present employed. It must be admitted that great accuracy is impossible in a schematic rating system and minor rate differentials only increase the complexity of the system and its expense without improving its accuracy.

The method of collecting statistics of fire premiums and losses is the same for all states and a standard classification is employed. The schedules used for ratemaking have not, however, been standardized. It is important that rate making methods should be the same in all states so that the statistical data could be more closely linked with the rate making, countrywide data could be used to augment state data for classifications with small experience, and comparison between states would be possible. It is not necessary that the same base rates and rate differentials should be used in different states, although some standardization of rate differentials which are based solely on judgment is probably desirable. In order to provide the most satisfactory statistical control, the base rate should correspond to the average risk, not the best risk nor the worst risk. It is only by standardization that the maximum value can be obtained from the statistical data available.

Once rate making methods and schedules have been standardized, the classifications used for the collection of statistics should be collated with the schedules so that the experience of an individual classification will provide a control of a base rate or an important rate differential in the schedules. Classifications should be selected also with an eye to the volume of data available. Very small classifications should be avoided and large classifications subdivided.

If the above suggestions were adopted, there would be adequate statistical control of base rates but not of rate differentials. Is it possible to provide any statistical control of rate differentials? Insofar as the data are large enough to allow sub-division corresponding to rate differentials, these can be controlled, but it is impossible to control every differential. A statistical method could be devised to control the general size of the differentials on the same lines as we measure the standard deviation of a distribution. The same result can be obtained rather more easily by grouping rates within a classification into three groups: non-hazardous, medium hazard, and severe hazard. The separate experience of these three groups would provide a reasonable control of the general size of differentials.

RATEMAKING BY CLASSIFICATION

It is often held that in fire rate making, it is undesirable for rates to be devised to reflect the experience of a particular classification alone. This is partly true. A catastrophe fire will upset the statistics for the particular state and classification in which it occurred to such an extent that slavish rate

making based on past experience will lead to most unreasonable rate increases. However, this is no justification for not using classified experience for rate making purposes. The problem can be dealt with mechanically by allocating a percentage (varying with the classification) of the premiums to catastrophe losses and taking out of the classified experience those premiums and all catastrophe losses. This is probably unnecessary as an experienced rate maker should be able to deal with the problem without setting up special arrangements of this nature.

PURE PREMIUMS

It is sometimes suggested that fire statistics should yield pure premiums instead of loss ratios as at present. A little consideration will show that pure premiums can be produced only if a statistical rating system is used. With a schematic system, loss ratios must be developed. If the suggestion of a statistical system for the residential class were adopted, the statistics for this business would be limited to sums at risk and losses. For other classes, where the schematic system is retained, premiums and losses must be recorded but, in addition, sums at risk are most desirable in order to assist in the calculation of the financial effect of rate revisions.

It is just as practicable to make accurate allowance for expenses with loss ratio statistics as with pure premiums when all expenses are expressed as a percentage of the premium payable.

ALLOWABLE EXPENSE RATIO

Fire rates are usually based on the assumption of an allowable expense ratio of about 50%, the same ratio being used for every classification and all sizes of policy. On this assumption, every basic rate and rate differential must be considered to include an appropriate charge for expenses. It has been suggested that it would be more satisfactory to develop the expense and the risk portions of the premium separately.

There are three possible departures from a fixed allowable loss ratio: (1) by size of policy, (2) by classification, and (3) by territory. The actual expenses of a policy for a particular classification and territory in general decrease as the size of the policy increases, because certain expenses remain very nearly constant whatever the size of the policy. However, because of the practice of limiting retentions, it is often necessary to effect a number of policies to cover a large risk. There is, therefore, a very practical objection to graduating rates according to the size of premium, as larger companies with larger retentions would quote lower premiums than smaller companies for the same risk. Equity could to some extent be preserved by varying the allowable expense ratio by classification, so as to take into account the average size of the policy within each classification. Such variation could at the same time take account of differences in inspection expenses and in commission when they exist. The allowable expense ratio used in rating those territories where exceptional rates of commission are payable should, and presumably does, reflect this special feature.

For the above reasons, it is desirable that an appropriate allowable loss ratio should be developed for each classification and territory. At the same

time the rating schedules should be revised so as to develop a risk premium. This premium would then be loaded for expenses, profit and catastrophes.

CREDIBILITY

It has already been pointed out that one of the difficulties in using the limited data available is the lack of any standard of credibility which can be applied to the figures. The first idea likely to occur to anyone considering this problem is the advantage which would accrue from recording the number of losses as well as their total amount. Unfortunately this would not be a very great help because of the practice in fire insurance of covering an individual risk with a number of similar policies effected with different insurance companies. The number of losses would, therefore, include a number of duplicates, the proportion of which would vary from class to class. Probably the best solution is to prepare, by means of an adequate sample inquiry, a schedule giving the average size of claim for each classification. With such a schedule, an estimate of the number of losses involved in any classification could be obtained and hence, a reasonable relative measure of credibility.

THE TERM RULE

The term rule which grants a three-year policy for $2\frac{1}{2}$ years' premiums and a five-year policy for four years' premiums, paid in advance, has a very long history. Originally limited in scope, it has been extended with the passage of time to a large number of classifications (the position varies from state to state). It might now be held to be discriminatory to restrict its application at all so long as the rule exists.

Clearly, the discount, while reasonable for the smaller residential risks, cannot be justified for the larger policies where the discount is too large to be justified on any expense saving, as there is no reason to assume any better experience under term policies.

Some people have proposed the abolition of the term rule with a suitable adjustment in rates to maintain equity. A consideration of some of the effects of such a step shows that this solution is not practicable. First, if the rule were abolished entirely without any substitute scheme, such as yearly renewable policies, the expenses of the business would undoubtedly be increased owing to the necessity to rewrite every policy yearly. This expense must be ultimately met by the insuring public; the term insurers losing slightly more than the yearly insurers gain. Secondly, a sudden cancellation of the rule would have very marked financial effects on the industry. This can be illustrated by setting out some hypothetical figures which approximately represent the actual position.

To use round numbers, let us assume the net premium income of the fire business of the fire companies is constant at one billion dollars (the true figure is rather larger), that the premium income is distributed in the proportion 40%, 45% and 15% between one, three and five year term business; that the term rule will be withdrawn for all policies issued after December 31, 1951; that business will be continued at a level rate with term business replaced by yearly business as the original policies run out and that the yearly rates will be reduced so that the total cost of insurance to the public

is unaltered. Then, ignoring the special problems of installment-provisions, the following financial effects will result:—

(1) When term business is replaced by yearly business, a smaller initial premium is payable for the same coverage. The incomes of the fire companies from fire business would drop in the years immediately following the cancellation. For 1952 the income would be about \$600,000,000 and for 1953 about \$750,000,000, compared with \$1,000,000,000 for 1951. By 1954, the income would return to approximately \$1,000,000,000.

(2) The income of insurance agents and brokers from fire commissions would drop to 60% in 1952 and 75% in 1953, of the 1951 figures.

(3) Unearned premium reserves, instead of being about 125% of the premium income, income would be reduced to only 50% over a period of three years. The companies would have to sell \$500,000,000 or more of securities on account of this adjustment. This money would be required to meet claims and expenses which, with the exception of commission expenses, would continue at the 1951 level for the years 1952 and 1953, despite the drop in premium income in those years. (If allowance were made for the increased cost of writing all policies yearly, the outgo for expenses, other than commissions, would rise.)

(4) Owing to the release of these reserves which are set up on a full proportionate basis and are therefore more than sufficient to meet expected losses, statutory underwriting profits would be increased above what they would otherwise be by about \$100,000,000 in 1952 and by about \$40,000,000 in 1953. This would involve very heavy extra taxation.

Under the circumstances, it seems most undesirable to propose the withdrawal of the term rule, but it should be replaced by a rule where the discount is graded according to size of premium if equity is to be maintained.

DEDUCTIBLES, EXCESS-OF LOSS, COINSURANCE AND OTHER PROBLEMS

The problem of rating policies subject to a deductible and the fixing of coinsurance allowances, can only be solved by adequate loss distribution curves for the principal classifications. The preparation of such curves presents many problems, owing largely to the practice of more than one company insuring a single risk, and a discussion of the subject will not be attempted here. For large excess-of loss and catastrophe policies, there is insufficient experience to make the preparation of loss distribution curves practicable and judgment rating is necessary.

There are many other rating problems which have been omitted from this discussion, owing to lack of space. Mention may be made of the provision for profits and catastrophes, time element policies, allied lines, and experience and retrospective rating for cases where large aggregates of property are involved.

A CASUALTY MAN LOOKS AT FIRE INSURANCE RATE MAKING

BY

M. H. MCCONNELL

Since we are now a fire insurance society as well as a casualty society, it behooves us to familiarize ourselves with fire insurance rate making procedures. The best way to do this is to hear from fire insurance men, which I understand we shall do this afternoon. However, since many of our members are unfamiliar with fire insurance rate making procedures, it may be helpful to look at fire insurance rate making through the eyes of one who is not familiar with their processes.

Last summer, with this thought in mind I decided to visit the New York Fire Insurance Rating Organization. It proved to be a fortunate decision because both Mr. Rice, the general manager and Mr. Hayden, who acted as my tutor, were exceedingly cooperative. Whatever information I requested was made available immediately, together with a logical and simple explanation. This is a report of that visit.

No attempt was made to investigate schedule rating although it is of the utmost importance in determining the individual policyholder's rate. The study was limited to the processes involved in arriving at the manual, or class rate, as it is called in fire insurance.

Before plunging into a description of the rate making procedures, we must consider a few broad principles upon which fire insurance rate making rests. Only a fire insurance man is qualified to comment fully on fire underwriting considerations but the following are fundamental and must therefore be mentioned:

1. Superior construction should be rewarded with a lower rate, other things being equal. For example, brick construction is better than frame construction and fire resistive construction is better than brick construction, other things being equal.
2. The degree of protection, both public and private should be reflected in the rate (Credit for private protection is largely accomplished through Schedule Rating).
3. In general the contents rate should be higher than the building rate.

Rate making results should not run counter to these principles.

Then there is the conflagration hazard which the fire actuary must consider. Casualty insurance is exposed to a catastrophe hazard also, but generally the catastrophe affects only a single policyholder. The chance that a single catastrophe would involve a large number of casualty policyholders is slight. However, the threat of a conflagration involving hundreds of policyholders is very real in fire insurance and must be considered in arriving at a fire insurance rate.

Similar exposure to catastrophic losses exists with respect to other coverages written by Fire Insurance Companies such as Extended Coverage. The November 25, 1950 windstorm affecting thousands of policyholders in New England and the Middle Atlantic States is a recent example of such a catastrophe. The estimated losses for this storm are almost \$200,000,000 and the number of claims may reach 500,000.

Another problem fire insurance actuaries must deal with is the fact that fire insurance and related coverages are admittedly low frequency coverages. Because of low frequency, slavish adherence to indicated rate levels might result in violent fluctuations in rates as well as violent fluctuations in relativity. To achieve a desirable degree of stability, exercise of underwriting judgment is required in selecting rate levels.

Coinsurance is another problem not often encountered by casualty actuaries. Its importance is considered by fire underwriters to diminish as the probability of total loss increases. If all losses were total losses there would be no co-insurance problem.

For these and other reasons, the problems confronting the fire insurance actuary are different from the problems of the casualty actuary. Nevertheless, in spite of these important differences, there is a family resemblance between fire insurance rate making procedures and the procedures we are familiar with in the casualty field. For example, in reviewing the fire rating procedures we encounter such familiar friends as rate level, relativity, classification experience, permissible loss ratio and even our old friend, the credibility factor, though they are sometimes called by different names.

The principal difference between casualty and fire rate making, it seems to me, is not so much in the procedures themselves as in the attitude of the rate maker toward the final result. With respect to lines of insurance involving a large volume of statistics, casualty men are prone to accept the results of their rate making processes as final except in unusual cases. Fire men, on the other hand, seem to look upon their processes merely as tests of the existing rates. Perhaps this is due to the difference in frequency referred to above.

To consider the actual steps followed in arriving at a fire insurance rate, let us review the 1951 New York Rate Revision. The essential features of the revision were:

1. The revision was based upon the experience for 1945 to 1949 inclusive.
2. The revision was based on New York experience, except for classifications with a limited volume of experience.
3. Rates were computed separately for New York City and for the balance of the State.
4. Changes in rates were ignored if they were less than 4%.
5. Credibility was so determined that one year's experience would not affect the final experience change for a classification by more than 10%.

The "permissible loss ratio" used in these calculations was 47.5%. "Permissible loss ratio" has been shown in quotes because fire insurance men, I am told, do not recognize the existence of a permissible loss ratio as we know it. Obviously, however, some basis of comparison must be agreed upon for testing rate levels and 47.5% was used for this purpose. This percentage was based upon the following distribution of premium between losses, expenses, profit and catastrophe:

Losses	47.5%
Expenses	46.5
Profit and Catastrophe	6.0
	100.0%

The arithmetic steps followed in the Rate Revision are shown for several classes in Table 1. They are:

1. The "Written-Paid" loss ratios were determined for each classification. In determining these loss ratios, written premiums were adjusted for rate level changes occurring since January 1, 1945.
2. The "Written-Paid" loss ratios were adjusted to prevent the experience of a single year from increasing or decreasing the final rate more than 10% after the application of the appropriate credibility factor. The table of these factors as well as the derivation of the table is shown in Table 2 following.
3. The "Written-Paid" loss ratios were converted to an "earned incurred" basis. The formulae for this conversion are as follows:

$$\begin{array}{rcl}
 \text{Earned Premium} & = & \text{Net Premium Written} \\
 & + & \text{Unearned Premium at beginning of year} \\
 & - & \text{Unearned Premium at end of year} \\
 \text{Incurred Losses} & = & \text{Net Losses Paid} \\
 & + & \text{Losses Outstanding at end of year} \\
 & - & \text{Losses Outstanding at beginning of year}
 \end{array}$$

4. The "earned incurred" loss ratios were compared to the permissible loss ratio of 47.5% to determine the gross indicated change for each classification.
5. The credibility factor for each classification was determined from the following table:

Credibility Table

<i>5-Year Premium</i>	<i>5-Year Credibility Factor</i>
0— 49,999	.05
50,000— 199,999	.10
200,000— 449,999	.20
450,000— 799,999	.30
800,000—1,249,999	.40
1,250,000—1,799,999	.50
1,800,000—2,499,999	.60
2,500,000—3,199,999	.70
3,200,000—3,999,999	.80
4,000,000—4,999,999	.90
5,000,000 and over	1.00

6. The Credibility factor for each classification was applied to the gross indicated change for the classification to determine the net indicated change.

These operations were performed by the New York Fire Insurance Rating Organization and were based on its own experience. After these calculations were completed a number of discussions were held with the New York Insurance Department. The New York Insurance Department made similar tests combining the experience of non-bureau companies with the experience of the New York Fire Insurance Rating Organization. At the end of these discussions the final rate changes were agreed upon. The Insurance Department's

indicated change as well as the requested change and the adopted change are also shown in Table 1.

Table 1 shows these calculations for several large classifications. All of the steps described above are illustrated by Brick Protected Schools—Upstate, the first sub-division of Table 1 as follows:

1. The "Written-Paid" loss ratio for 1945 to 1949 was
64.04%
2. The 1947 loss ratio of 94.29% would have influenced the five year rate level by more than 10%, therefore the losses for 1947 were adjusted to produce a loss ratio for the year of 87% (This is in accordance with Table 2 which shows that the loss ratio for a single year should not exceed 87% when classification credibility is .60). This adjustment resulted in a five year adjusted loss ratio on a "Written-Paid" basis of
62.64%
3. This loss ratio was converted to an "Earned-Incurred" basis and became
74.01%
4. The gross indicated change in rates was

$$\frac{74.01}{47.5} - 1.000 = .558 \text{ or } 55.8\%$$
5. The Credibility Table shows that if the five year premium is more than \$1,800,000 and less than \$2,499,999 the credibility factor should be .60. Since the five year premium for this classification was \$2,199,363 the credibility factor was
.60
6. The net indicated change was therefore
.60 \times 55.8% = 33.5%
7. The indicated change obtained by the Insurance Department based on the experience of all companies was
31.0%
8. The requested change was
25.0%
9. The adopted change was
25.0%

Although rate level changes are computed separately for the various subdivisions of the classifications it is customary also to compute the over-all rate level change for the classifications. Since the rate level indications for each subdivision are not always followed entirely it is desirable to have the over-all change as a check on the results for the classification as a whole. The over-all rate level change for Schools has been included on Table 1.

Although the rates for all brick protected schools in New York State, out-

side of New York City were increased 25%, it does not follow that two brick protected schools in upstate New York would have identical rates. Their rates might be different because the cities in which they were situated did not have the same fire-fighting facilities or the same available water supply. They might be different because of varying degrees of protective devices such as sprinklers. They might be different because of the exposure created by surrounding buildings or for many other reasons recognized by schedule rating.

The above has been a description of the rate making procedures for direct fire insurance followed in the State of New York. There are many other fire coverages and many other states. However, direct fire insurance is the largest fire line and New York is the largest state. Consequently, direct fire rating procedures as practiced in New York would seem to be a fair sample of rating procedures in the industry.

Many factors besides rate levels affect loss ratios. Nevertheless, as a rough measure of the effectiveness of fire insurance rate making procedures, New York State and Countrywide loss ratios on an earned incurred basis for the last five years are shown below.

<i>Year</i>	<i>Countrywide</i>		<i>New York State</i>	
	<i>Earned Premiums</i>	<i>Loss Ratio</i>	<i>Earned Premiums</i>	<i>Loss Ratio</i>
1946	\$644,288,459	53.3%	\$ 71,648,505	54.9%
1947	770,738,539	53.6	85,031,232	53.2
1948	867,012,493	48.3	100,128,226	45.6
1949	936,198,726	40.7	*115,905,872	39.0
1950	970,732,739	40.3	*114,026,804	39.4

*before reinsurance

The above figures were prepared by Mr. Collins of the New York Insurance Department and appeared in the September 25, 1951 issue of The Journal of Commerce. They were prepared by Mr. Collins from the Insurance Expense Exhibits filed by companies licensed to do business in New York. These figures are on a net premium basis, that is after reinsurance except the New York State figures for 1949 and 1950 which are on a direct basis, that is before reinsurance.

TABLE I

		<i>Written Prem. (Adjusted for) (Rate Changes)</i>	<i>Paid Losses</i>	<i>Written-Paid Actual Adjusted</i>	<i>L.R. Loss Ratio</i>	<i>Earned Incurred Loss Ratio</i>	<i>Indicated Change (Gross)</i>	<i>Credi- bility Factor</i>	<i>Indicated Change (Net)</i>	<i>Indicated Change Ins. Dpt.</i>	<i>Re- quested Change</i>	<i>Adopt- ed Change</i>
CLASS 3—SCHOOLS UP-STATE												
<i>Brick Protected</i>	1945	306,786	207,813			67.74						
	1946	395,855	192,970			48.75						
				(365,799)*								
	1947	420,459	396,459		87.00	94.29						
	1948	470,026	287,461			61.16						
	1949	606,237	323,736			53.40						
			(1,377,779)*									
	Total	2,199,363	1,408,439		64.04	62.64	74.01	+55.8	.60	+33.5	+31.0	25.0 25.0
<i>Frame Protected</i>	1945	60,632	38,038			62.73						
	1946	114,467	35,591			31.09						
	1947	106,852	37,922			35.49						
	1948	144,565	31,772			21.98						
	1949	148,909	62,616			42.05						
	Total	575,425	205,939		35.79	35.79	44.01	- 7.4	.30	- 2.2	+ 0.8	no change
<i>Un- protected</i>	1945	112,060	32,351			28.87						
	1946	135,036	97,476			72.18						
	1947	160,876	28,491			17.71						
	1948	218,471	55,921			25.60						
	1949	199,899	112,281			56.17						
	Total	826,342	326,520		39.51	39.51	47.02	- 1.0	.30	- 0.3	- 2.3	no change
<i>Fire Resistive</i>	1945	133,221	17,834			13.39						
	1946	130,253	52,230			40.10						
	1947	214,064	152,736			71.35						
	1948	301,138	269,071			89.35						
	1949	338,041	175,692			51.97						
	Total	1,116,717	667,563		59.78	59.78	81.94	+72.5	.40	+29.0	+24.7	25.0 25.0

*Adjusted to produce 87.0% Loss Ratio for 1947.

TABLE I—Continued

		<i>Written Prem. (Adjusted for) (Rate Changes)</i>	<i>Paid Losses</i>	<i>Written-Paid L.R. Actual Adjusted</i>		<i>Earned Incurred Loss Ratio</i>	<i>Indicated Change (Gross)</i>	<i>Credi- bility Factor</i>	<i>Indicated Change (Net)</i>	<i>Indicated Change Ins. Dpt.</i>	<i>Re- quested Change</i>	<i>Adopt- ed Change</i>
CLASS 3 SCHOOLS—NEW YORK CITY												
<i>Brick Protected</i>	1945	55,331	20,002	36.15								
	1946	73,946	8,019	10.84								
	1947	71,928	32,635	45.37								
	1948	109,787	3,494	3.18								
	1949	106,275	10,199	9.60								
	Total	417,267	74,349	17.82	17.82	21.14	-55.5	.20	-11.1	-11.2	no change	
<i>Frame Protected</i>	1945	4,326	408	9.43								
	1946	7,802	1,082	13.87								
	1947	30,472	9,481	31.11								
	1948	24,980	6,008	24.05								
	1949	25,040	2,409	9.6								
	Total	92,620	19,388	20.93	20.93	29.95	-37.0	.10	- 3.7	- 4.3	no change	
<i>Fire Resistive</i>	1945	47,897	34,017	71.02								
	1946	53,704	9,029	16.81								
	1947	112,341	26,591	23.67								
	1948	81,609	21,531	26.38								
	1949	96,071	9,189	9.56								
	Total	391,622	100,357	25.62	25.62	32.23	-32.2	.20	- 6.4	- 6.8	no change	
CLASS 3 SCHOOLS—NEW YORK CITY AND REMAINDER OF STATE COMBINED												
<i>Total</i>	N.Y.C.	901,509	194,094	21.53	21.53	26.65	-43.9	.40	-17.6			
	Rem.	4,717,847	2,577,801	54.64	54.64	67.15	+41.4	.90	+37.3			
	Total	5,619,356	2,771,895	49.33	49.33	60.72	+27.8	1.00	+27.8			

*Adjusted to produce 87% Loss Ratio for Brick Protected Schools—up state for 1947.

TABLE I—Continued

		<i>Written Prem. (Adjusted for) (Rate Changes)</i>	<i>Paid Losses</i>	<i>Written-Paid Actual</i>	<i>L.R. Adjusted</i>	<i>Earned Incurred Loss Ratio</i>	<i>Indicated Change (Gross)</i>	<i>Credi- bility Factor</i>	<i>Indicated Change (Net)</i>	<i>Indicated Change Ins. Dpt.</i>	<i>Re- quested Change</i>	<i>Adopt- ed Change</i>
CLASS 4 DWELLINGS—UP-STATE												
<i>Brick Protected</i>	1945	1,699,027	706,227	41.57								
	1946	2,240,847	1,144,361	51.07								
	1947	2,477,493	1,006,316	40.62								
	1948	1,815,346	741,662	40.86								
	1949	1,855,375	642,449	34.63								
	Total	10,088,088	4,241,015	42.04	42.04	45.06	- 5.2	1.00	- 5.2	- 5.7	no change	
CLASS 4 DWELLINGS—NEW YORK CITY												
<i>Brick Protected</i>	1945	5,706,437	3,170,644	55.56								
	1946	6,803,444	3,644,701	53.57								
	1947	7,331,440	3,600,640	49.11								
	1948	8,585,120	3,893,172	45.35								
	1949	9,870,862	3,606,815	36.54								
	Total	38,297,303	17,915,972	46.78	46.78	56.82	+19.6	1.00	+19.6	+17.9	approxim. 10%	
CLASS 6 MERCANTILE—UP-STATE												
<i>Brick Protected</i>	1945	2,018,457	957,466	47.43								
	1946	2,729,926	1,251,975	45.86								
	1947	3,106,114	1,051,793	33.86								
	1948	2,861,250	1,579,733	55.21								
	1949	3,084,882	1,195,882	38.76								
	Total	13,800,629	6,036,849	43.74	43.74	49.83	+ 4.9	1.00	+ 4.9	+ 3.4	no change	
CLASS 6 MERCANTILE—NEW YORK CITY												
<i>Brick Protected</i>	1945	5,398,787	3,058,961	56.66								
	1946	6,649,689	2,874,381	43.22								
	1947	6,330,349	2,979,563	47.07								
	1948	7,655,632	3,365,427	43.96								
	1949	7,801,482	2,764,833	35.44								
	Total	33,835,939	15,043,165	44.46	44.46	51.82	+ 9.1	1.00	+ 9.1	+ 6.7	5.0	5.0

TABLE 2
CREDIBILITY FACTORS AND MAXIMUM AND
MINIMUM ANNUAL LOSS RATIOS

5-Year Premium	5-Year Credibility Factor	Single Year Loss Ratio Limit	
		Upper	Lower
0— 49,999	.05	5.225	.000
50,000— 199,999	.10	2.850	.000
200,000— 449,999	.20	1.662	.000
450,000— 799,999	.30	1.266	.000
800,000—1,249,999	.40	1.068	.000
1,250,000—1,799,999	.50	.950	.000
1,800,000—2,499,999	.60	.870	.080
2,500,000—3,199,999	.70	.814	.136
3,200,000—3,999,999	.80	.771	.179
4,000,000—4,999,999	.90	.738	.212
5,000,000—and over	1.00	.712	.238

The Five Year Credibility Factors are, of course, arbitrary Factors but the Upper and Lower One Year Loss Ratio Limits are calculated amounts. They are so calculated as to limit the effect of the experience of a single year to a rate level change of 10% after the appropriate Credibility Factor has been applied to the limited five year loss ratio. In the calculation a constant premium volume is assumed for each of the 5 years.

For example, the effect of an annual loss ratio of .870 on a five year rate level would be 16.6% for a classification having 100% credibility.

$$\frac{1}{5} \text{ of } \left(\frac{.870}{.475} - 1.000 \right) = 16.6\%$$

But if the credibility for the class is 60%, as in the case of Brick protected schools up-state, the change in rate level would be 10%.

$$60\% \text{ of } 16.6\% = 10\%$$

The formula for the Maximum Annual Loss Ratio is:

$$\left[\frac{X + 4(.475)}{5(.475)} - 1.000 \right] C = .10$$

$$\frac{X + 4(.475)}{5(.475)} = \frac{.10}{C} + 1.000$$

$$X + 4(.475) = 2.375 \frac{(.10)}{C} + 2.375$$

TABLE 2 (Continued)
 CREDIBILITY FACTOR AND MAXIMUM AND
 MINIMUM ANNUAL LOSS RATIOS

$$X = 2.375 \frac{(.10)}{C} + 2.375 - 1.900$$

$$X = 2.375 \frac{(.10)}{C} + .475$$

The formula for the Minimum Annual Loss Ratio is:

$$\left[\frac{X + 4(.475)}{5(.475)} - 1.000 \right] C = -.10$$

$$\left[\frac{X + 4(.475)}{5(.475)} \right] = 1.000 - \frac{.10}{C}$$

$$X + 4(.475) = 2.375 - 2.375 \frac{(.10)}{C}$$

$$X = 2.375 - 1.900 - 2.375 \frac{(.10)}{C}$$

$$X = .475 - 2.375 \frac{(.10)}{C}$$

On the basis of these formulae the Table is built up as follows:

C	Maximum		Minimum	
	.10	2.375 (.10)	2.375 (.10) + .475	.475 - 2.375 (.10)
	$\frac{.10}{C}$	$\frac{2.375}{C}$	$\frac{2.375}{C}$	$\frac{.475}{C}$
.05	2.000	4.750	5.2250	negative
.10	1.000	2.375	2.8500	negative
.20	.500	1.1875	1.6625	negative
.30	.3333	.7917	1.2667	negative
.40	.2500	.5938	1.0688	negative
.50	.2000	.4750	.9500	.0000
.60	.1667	.3959	.8709	.0791
.70	.1429	.3394	.8144	.1356
.80	.1250	.2969	.7719	.1781
.90	.1111	.2639	.7389	.2111
1.00	.1000	.2375	.7125	.2375

Theoretically the Maximum and Minimum Loss Limits should be applied to the "Earned-Incurred" Loss Ratios. In actual practice, however, they are applied to the "Written-Paid" Loss Ratios as shown in Table I. The difference between the two procedures has been found to be negligible.

THE COMBINED FIRE AND CASUALTY ANNUAL STATEMENT BLANK

BY
THOMAS F. TARBELL

SCOPE

This is the second installment of the above paper (see *Proceedings*, Volume XXXVII, Number 68) and deals with the following phases of the blank:

Financial Statement
Exhibits and Schedules

FINANCIAL STATEMENT

The following excerpt is quoted from "The Weekly Underwriter", issue of February 3, 1951:

"Within the past few years the interest of assureds in these annual statements has taken on new aspects. The companies have been cognizant of that fact, with the result that most of the statements are now clear and concise and readily understood by the public.

"These statements make evident at a glance the financial status of a carrier—lay bare the assets, type of assets, total of capital funds, obligations, and type of obligations. All this to the modern assured is important information."

While it is not certain that the writer of the above had in mind the subject blank, it is reasonable to claim that such blank meets the criteria implied in the second paragraph of the quotation.

As stated in the previous installment, the financial condition and operating results are exhibited concisely on three pages. This installment deals with these pages, including such references to other pages as are pertinent or essential.

All references to the previous blank, unless otherwise qualified, are to the 1949 Miscellaneous blank and all references to the new blank are to the 1951 Fire and Casualty edition.

ASSETS (Page 2)

The history and development of insurance annual statement reports show that the original form of report was a rather simple statement based upon a modified single entry bookkeeping system. In its simplest form the statement showed the development of "cash" assets from the beginning of the year to the end of the year. Cash debits (premiums, interest, etc.) represented increments according to source, and cash credits (losses, expenses, etc.) decrements according to purpose. Ledger liabilities, other than capital stock, were not contemplated. This form, with necessary amendments to reflect non-income items affecting the balancing of the ledger assets between years (adjustments in book values, surplus paid in, capital paid in and changes in other ledger liabilities), was consistently adhered to throughout the existence of the superseded blanks.

The change from cash to earned or accrued income brought in the Non-ledger Assets section and legal requirements or Insurance Department rulings accounted for the Non-Admitted Assets section. As a result, the Assets page produced the "Total Admitted Assets". However, to determine the statement (allowable or admitted) values of certain specific assets it was necessary to modify the book (ledger) values by either the non-ledger or the non-admitted values. The advantages of the new form of Assets page appear to be obvious.

Attention is called to changes in reporting under the new blank which result in total assets differing from the total produced under the previous forms. In the previous Miscellaneous (Casualty) blank uncollected premiums were reported gross as to commissions whereas in the new blank commissions on such premiums are charged as a disbursement. Consequently, the uncollected premium item—Item 8—is net as to commissions.

In both the previous Miscellaneous, and Fire blanks the net discount applicable to assets and liabilities due to foreign exchange discount rates was reported as a non-admitted asset whereas in the new blank it is transferred to the liabilities page. This treatment avoids a negative asset item.*

Further comments on other asset items will be made in connection with consideration of other sections of the blank.

LIABILITIES, SURPLUS AND OTHER FUNDS (Page 3)

The liabilities page does not differ materially from that of the previous blank. Items 1-13 provide for the same information as previous Items 1-36, except as hereinafter noted. Data of an analytical or statistical nature, net losses or claims outstanding by line and status, and reserves for loss adjustment expenses by line of business previously required by the Miscellaneous blank, have been omitted and are incorporated elsewhere in the blank. No liability for commissions, other than contingent commissions, is necessary for the reason previously given. Also, as previously pointed out, a new item (Item 17) to reflect the net adjustments in assets and liabilities due to foreign exchange rates has been added.

In the last paragraph of the first installment reference is made to several basic changes from the superseded forms not included in the "final edition" of the blank put out by the industry. This contemplated the following items:

14. (a) Unearned premiums on reinsurance in unauthorized companies.
- (b) Reinsurance on paid losses \$..... and on unpaid losses \$..... due from unauthorized companies.
- (c) Total \$.....
15. Less funds held or retained by company for account of such unauthorized companies as per Schedule F, Part 2.
16. Excess of liability and compensation statutory and voluntary reserves over case basis and loss expense reserves (Schedule P).

Items 14(a) and 14(b) had been previously required as special items by some states.

Item 1 requires outstanding losses net as to all reinsurance, both authorized and unauthorized, and case basis loss reserves for the liability and the work-

* In theory each asset convertible to or collectible in foreign funds and each liability payable in foreign funds could be adjusted to discounted values, thus eliminating the necessity of the item in question.

men's compensation lines. Item 2 requires that specific loss expense reserves be carried for the liability and compensation lines. Item 10 requires that the unearned premium reserve be shown net as to all reinsurance both authorized and unauthorized. Consequently, Items 14, 15 and 16 are necessary to reflect the net additional charges against surplus to conform to statutory requirements.

Item 15 was not included in the 1950 Blank but was added in 1951. The purpose of this Item is to permit the company to offset amounts included in Items 14(a) and 14(b) to the extent of

1. Deposits made by unauthorized reinsurers to secure or to guarantee the reimbursement of the company for paid or unpaid losses recoverable from such reinsurers.
2. Funds due such reinsurers but withheld by the company under treaty or reinsurance agreements.
3. Balances payable to such reinsurers.

In determining the total amount to be included in Item 15, each reinsuring company is considered as an entity, that is—if for any reinsuring company the offsets to Items 14(a) and 14(b) exceed the amounts of such Items, the excess must be disregarded. (See also comments under Schedule F, Part 2.)

UNDERWRITING AND INVESTMENT EXHIBIT (Page 4)

STATEMENT OF INCOME

This section exhibits the operating income for the year on the earned or realized basis, both before and after Federal income taxes. It follows as closely as possible the basis required for computing such taxes.

Underwriting Income. Items 1–7 correspond to Items 5, 14, 19, 24, 25 and 26, Page 8 of the previous blank.

Investment Income. Item 8 corresponds to Item 56, Page 9 of the previous blank. Item 9 will correspond in most instances to the difference between Items 57 and 62, Page 9 of such blank.

Other Income. Item 10 corresponds to Items 29 and 33, Page 8 of the previous blank. Items 11–17 correspond to Items 30 and 34, Page 8 of such blank. Note that Item 19 corresponds to Item 77 of the previous blank.

CAPITAL AND SURPLUS ACCOUNT

This section exhibits the movement of surplus to policyholders for the year and reflects net income, unrealized gains or losses, direct charges or credits to surplus, and dividends to stockholders or to policyholders.

Item 23 will correspond in most instances to the difference between (a) the sum of Items 58–60 and (b) the sum of Items 63–65, Page 9 of the previous blank.

Item 24 corresponds to Item 39, Page 8 of the previous blank.

Items 25, 26 and 27 are required because of new liabilities Items 14, 15 and 16, Page 3. The remaining items correspond to similar items included in Items 70–76 and 78–81, Page 9 of the previous blank, after allowing for the fact that capital stock is reflected in the "Capital and Surplus Account" but was not reflected in the "Miscellaneous Exhibit" of the previous blank.

In the discussion of the two previous sections, it was brought out that income is on the earned or realized basis. However, realized and unrealized capital gains are not defined. Consequently, in referring to these items, the qualification "in most instances" was used. There are differences of opinion as to what constitutes "realized" and "unrealized" capital gains or losses. A conservative definition of realized capital gains or losses contemplates only profit or loss on actual sales. A more liberal definition contemplates the inclusion of market value appreciation or depreciation. Those holding to the conservative viewpoint would no doubt concede that there are changes in values which, while involving no actual sale or other disposition, might reasonably be considered as "realized". One such example is an asset which, due to certain circumstances or developments, has definitely suffered a loss in its asset value which, in all probability, will not be regained.

Because of the foregoing differences of opinion and practices, the blank as finally adopted left the decision of allocation between realized and unrealized gains or losses to the individual company.

SUMMARY OF SURPLUS AS REGARDS POLICYHOLDERS

This section requires no particular comment. The total increase or decrease agrees with Item 36 of the Capital and Surplus Account.

EXHIBITS

The exhibits consist of:

Underwriting and Investment Exhibit—Parts 1, 1A, 2, 2A, 2B, 2C, 3, 3A and 4

Exhibit 1

Exhibit 2

Exhibit 3

Exhibit of State Business

All of the foregoing, except Exhibit 3 and Exhibit of State Business, substantiate or elaborate on various items contained in the financial statement proper. They are considered in order.

UNDERWRITING AND INVESTMENT EXHIBIT

PART 1—INTEREST, DIVIDENDS AND REAL ESTATE INCOME (Page 5)

This part shows the development of net investment income earned reported in Item 8, Page 4. Item 12 of the part "Depreciation on real estate (for companies which depreciate annually on a formula basis)" is a new item not provided in the previous blank. The intent of this item is given in a memorandum prepared by a committee representing the fire and casualty industry and a subcommittee of the Committee on Blanks of the National Association of Insurance Commissioners designated as "Suggested Procedures for Compiling 1950 Fire and Casualty Annual Statement Blank" (hereinafter referred to as "Procedures") and is as follows:

"This is a new item in the 1950 Blank. It contemplates the annual depreciation charge where a depreciation formula is used to write down home office and other properties that are being held for company occupancy or as a long-term investment. Any excess depreciation charge over such annual periodic charge should be included in Part 1A—Capital

Gains and Losses on Investments. For example: If a company which has not been depreciating its home office real estate on a formula basis decided to do so and depreciated the value over the unexpired assumed lifetime of the property, only that part would be included in Item 12 which represents the depreciation charge which would have been made if the company had been depreciating the property from the outset. The annual depreciation charge included in Item 12 of Part 1 would be included in Schedule A, Part 1, Column (9) and/or Schedule A, Part 3, Column (6) and footnotes appended reading as follows: "Includes \$. depreciation included in Page 5, Part 1, Item 12, such annual depreciation charge should also be included in Schedule A, Part 1, Column (15) and/or Schedule A, Part 3, Column (12)."

PART 1A—CAPITAL GAINS AND LOSSES ON INVESTMENTS (Page 5)

The following is quoted from the "Procedures", underlining supplied.

"The information for compiling this part is available from the various asset schedules and corresponds to that provided for in the 1949 Blank.* Note, however, that as respects real estate, Column (4) excludes depreciation included in Part 1, Item 12. Note further that while in general the amount to be reported in Item 9 will be the difference between Columns (1) and (2) of Item 8, and Item 10 will be the difference between Item 9 and Item 8, Column (6), the actual distribution of Item 8, Column (6) is left to the discretion of the company. In the case where a company enters in Item 9 the difference between Columns (1) and (2), no detailed statement or memorandum need be attached. A note to that effect will be sufficient.

"Note that companies which do not make book entries for the accrual of discount or amortization of premiums on bonds or mortgages, or do not include depreciation of real estate in Part 1, will include the net current year's increase or decrease between the book and admitted values in Part 1A, Column (5)."

PART 2 —PREMIUMS WRITTEN AND PREMIUMS EARNED (Page 6)

PART 2A—PREMIUMS IN FORCE (Page 6)

PART 2B—RECAPITULATION OF ALL PREMIUMS (Page 7)

PART 2C—RECAPITULATION OF FIRE PREMIUMS (Page 7)

These parts require the same premium information as required by, and provided for, in the 1949 Fire, and Miscellaneous Blanks and require no further explanation except to call attention to the fact that in the development of unearned premiums and earned premiums, reinsurance in both authorized and unauthorized companies is required to be reflected.

Note that Column (7), Part 2, provides for earned premiums by line of business and that the Total of this column is carried to Item 1, Page 4.

Part 2C provides for the details of net premiums in force by term and expiry and the unearned premiums thereon as summarized in Item 1, Part 2B.

PART 3—LOSSES PAID AND INCURRED (Page 8)

Columns (1)–(4) provide the same information as required by the corresponding columns of the Loss Payment section of Page 3 of the previous blank.

* Page 9, Items 57-65.

Column (5). The change during the year in the non-ledger assets for salvage and reinsurance recoverable on paid losses is taken care of in this column. Note that such salvage and reinsurance is to be reflected in Column (5) if the same was reported as a non-ledger asset in either the prior or current year.

Column (7). This column provides for net unpaid losses, current year, the same information as in Column (6), Page 5 of the previous blank, except for the workmen's compensation, liability other than auto, and auto liability lines. The amounts are the same as reported in Column (6), Part 3A (see below).

PART 3A—UNPAID LOSSES AND LOSS ADJUSTMENT EXPENSES (Page 9)

Columns (1)–(6) of this part require for unpaid losses the same type of data as required by Page 5 of the previous blank for all lines of business, including workmen's compensation, liability other than auto, and auto liability, as provided for by Schedule P as amended in 1950 and hereinafter discussed. Note further than the amounts to be entered in Column (6) for the workmen's compensation, liability other than auto, and auto liability lines are the case basis reserves, excluding loss expense, Schedule P, Part 1, Column (12), and Part 2, Column (10).

The amounts to be entered in Column (7) for all lines of business correspond to the unpaid loss adjustment expenses as provided for on Page 5 of the previous blank for lines other than workmen's compensation, liability other than auto, and auto liability. The amounts for these latter lines are shown in Column (12½), Schedule P—Part 1 and Column (10½), Schedule P—Part 2 of the statement under consideration.

The total of Column (6) is carried to Item 1, Page 3, and the total of Column (7) to Item 2, Page 3.

Note that as respects both Part 3 and 3A the development of unpaid and incurred losses requires the reflection of reinsurance in both authorized and unauthorized companies.

PART 4—EXPENSES (Page 10)

This part, with minor editorial changes and the omission of non-expense items, contains the same information as provided for on Pages 3 and 5 of the previous blank, with one exception:

In the case of casualty companies the commissions to be entered in Item 2 (a), (b), (c) and (e) are, as previously pointed out, the incurred commissions for the calendar year.

The amount of Item 23, Column (1), checks with the total of Column (7), Part 3A, Page 9, and Item 2, Page 3.

Item 23, Column (2) checks with the sum of Items 3, 4 (Underwriting) and 5 (Underwriting) Page 3, and Item 23, Column (3) checks with Items 4 (Investment) and 5 (Investment), Page 3.

EXHIBIT 1—ANALYSIS OF ASSETS (Page 11)

This exhibit substantiates the statement (admitted) values of assets as reported on Page 2 and provides substantially the same information in columnar form as that provided for on Page 4 of the previous blank in the ledger assets, non-ledger assets and assets not admitted sections.

Blank Line 7 contemplates assets of a nature similar to Items 1–6. Blank

Lines 12 and 13 contemplate assets of a nature similar to Items 8-11. Blank Lines 18-21 contemplate assets of a miscellaneous nature.

The amount appearing in Item 8, Column (3) is the amount of agents balances or uncollected premiums (including reinsurance assumed) over three months due, net as to commissions and dividends, but without deduction of ceded reinsurance balances payable over three months due. The amount of ceded reinsurance balances payable does not appear on the exhibit but is separately set out on Page 2.

EXHIBIT 2—ANALYSIS OF NON-ADMITTED ASSETS (Page 11)

The purpose of this exhibit is to develop the net change during the year in non-admitted assets, excluding investment items, to be entered in Item 24, Page 4.

EXHIBIT 3—RECONCILIATION OF LEDGER ASSETS (Page 12)

This exhibit provides the necessary information to facilitate the reconciliation of ledger assets between years taking into consideration cash income and disbursements, profits and losses on sales of assets, adjustments in book values of ledger assets and any other items affecting such reconciliation. The required information is available from the various parts and schedules of the statement and the ledger liabilities in the statements of the current and previous years.

EXHIBIT OF STATE BUSINESS (Page 14)

This exhibit requires no particular comment. It was adapted from the previous Fire blank and provides for the reporting of both losses paid and losses incurred. The previous miscellaneous blank provided for the reporting of losses paid only.

SCHEDULES

Except for the omission of Schedule H, the addition of Schedules F and K, and amendment of Schedule P as revised in 1950, the various schedules, with minor changes, are the same as those of the previous blank. They are included in this paper primarily for the benefit of students preparing for the Society examinations and others desiring a knowledge of the contents, scope, and requirements for compilation. This section of the paper is in general a revision of the paper "Exhibits and Schedules of the Casualty Annual Statement Blank" originally appearing in "*Proceedings*", Volume XVI., Part I (Number 33), November 19, 1929. They fall into three general classifications, as follows:

MISCELLANEOUS SCHEDULES

- Special Deposit Schedule
- Schedule of All Other Deposits
- Schedule E—Reinsurance Recoverable
- Schedule L—Rates of Dividends for Participating Policies
- Schedule M—Payments for Certain Purposes or Services
- Schedule T—Exhibit of Premiums Written, Losses and Dividends Paid, by States and Territories and method of allocation of premiums by State
- Schedule F—Reinsurance Premiums in Force

INVESTMENT OR ASSET SCHEDULES

- Schedule A—Real Estate
- Schedule B—Mortgage Loans
- Schedule C—Collateral Loans
- Schedule D—Bonds and Stocks
- Schedule N—Bank Balances
- Schedule X—Unlisted Assets

UNDERWRITING AND RESERVE SCHEDULES

- Schedule G—Development of Unpaid Fidelity and Surety Losses and Claims Outstanding at the end of the seven prior calendar years
- Schedule K—Reserve for Credit Losses
- Schedule O—Test of Loss Reserves (excluding liability and compensation) as of end of previous year in the light of developments during the current year
- Schedule P—Liability and Compensation Loss and Loss Expense Reserves

The principal purposes of these schedules are as follows:

- (1) To provide insurance departments with sufficient information to determine if companies are complying with state laws.
- (2) To provide insurance departments with sufficient data and details to permit a partial audit of the financial statement during the interim between regular periodic examinations which are usually made at intervals of from three to five years.
- (3) To afford information, in addition to that directly bearing upon operating results, of general or specific interest, particularly as respects a company's investments.

The schedules are taken up individually in the order in which they appear in the statement blank.

SPECIAL DEPOSIT SCHEDULE (Page 15)

As a condition precedent to granting authority to transact business, certain states require that a deposit of securities* be made with a designated state official for the exclusive benefit of policyholders (and creditors) in the particular state. This schedule contains a description and other details of securities so deposited. It has no direct bearing upon the financial statement.

SCHEDULE OF ALL OTHER DEPOSITS (Page 15)

As a condition precedent to granting authority to transact business, certain states require that a company must have a deposit of a stated amount in the form of approved securities with the proper official of its home state or some other state for the benefit of all policyholders (and creditors). United States branches of foreign companies are required to make similar deposits in some states in lieu of capital. The foregoing types of deposits are known as general deposits. As in the case of special deposits, they have no direct bearing upon the financial statement.

* In lieu of a deposit of securities some states permit the filing of a corporate surety bond.

PART 2

REAL ESTATE ACQUIRED DURING THE YEAR

Column (5): *Cost to Company during year.* This column calls for gross cost to company, less incumbrances assumed, if any, of real estate as it stands at date, or dates, of purchase, i.e., the cost of the land, if unimproved, or cost of land and improvements, if improvements exist at date of purchase, including, of course, cost of acquiring title. It should not include any amounts expended for additions and permanent improvements subsequent to date of acquiring title.

Column (6): *Amount expended for Additions and Permanent Improvements during the year.* This column calls for amounts expended during year for additions and permanent improvements on all real estate made subsequent to acquiring title, including that acquired prior to the current year and that acquired during the year, which are charged to capital (asset) account. Ordinary repairs and expenses charged to expense account should not be reported in this column, but in Column (15) "Expended for taxes, repairs and expenses" of Part 1.

Column (7): *Book Value December 31st of Current Year Less Incumbrances.* There is some uncertainty as to what should be reported in this column as respects amounts expended for additions and permanent improvements during the year on real estate held at the end of the previous year. A majority of companies show only the book value corresponding to the amounts expended for such additions or improvements, and a small minority show the total book value of the property at the end of the year—the book value as of the end of the previous year plus the cost of the additions or improvements made during the year—subject, in each case, to increases or decreases by adjustment in book values reported in Columns (8) and (9) of Part 1.

PART 3

REAL ESTATE SOLD DURING THE YEAR

If, as is sometimes the practice, increases or decreases in book value are made to bring the book value to the sale price, the amount to be entered in the "Book value at date of sale" column is the book value after such profit or loss adjustments have been made, i.e., the sale price.

Where sale is made subject to existing incumbrances, the amount to be entered in the "Amount received" column is the sale price less the existing incumbrances.

Where, however, a sale is made of unincumbered real estate, the company taking a mortgage as part payment, the amount to be entered in the "Amount received" column is the gross sale price.

Sales under contract. Footnote "††" requires that the book value at date of sale shall be the amount of the partial payment received during the year until the book value is exhausted. This means that no profit will be shown until the total of the partial payments exceeds the book value at date of sale, or if the contract sale price is less than the book value at date of sale, no loss will be shown until the final installment is paid.

It is believed that the footnote is for guidance and that other methods of reporting such transactions are permissible. One such method is to prorate the book value and contract sale price over the period of the contract and to report

the respective pro rata amounts for each installment payment. This will produce a pro rata profit or loss for each installment.

However, in instances where the contract sale price is less than the book value at date of contract, it is generally preferable to reflect the loss immediately and decrease the book value to the sale price. On the other hand, where the contract sale price exceeds the book value at date of contract, it is preferable not to reflect the entire profit at that time but to spread it over the term of the contract because of the possibility that, through default, the entire anticipated profit may not be realized.

Attention is called to the fact that the schedule will not balance between years according to the formula hereinbefore stated if during the year there have been transactions involving changes in the amounts of incumbrances:

- (a) Increase of incumbrance (including the incumbering of previously unincumbered property).
- (b) Liquidation or decrease of incumbrance.

The following modifications should be made in the formula:

As respects (a)—Following the item "Received on sales, Part 3, Col. (8)", interpolate the item "Increase in incumbrance(s) during year".

As respects (b)—Following the item "Cost of Acquired, Part 2, Col. (5)", interpolate the item "Liquidation of (or decrease in) incumbrance(s) during year".

Checks between various data in the schedule and certain items of the parts and exhibits follow:

The total of Column (6), Part 1—Book value less incumbrances—checks with Item 4, Column (1), Exhibit 1.

The difference between Columns (6) and (7)—Market value less incumbrances—Part 1, checks with Item 4, Column (2), or Column (3), Exhibit 1, and the increase or decrease in such difference during the year checks with Item 4, Column (5), Part 1A.

The sum of the totals of Column (8), Part 1 and Column (5), Part 3—Increase by adjustment in book value during year—checks with Item 4, Column (3), Part 1A.

The sum of the totals of Column (9), Part 1 and Column (6), Part 3—Decrease by adjustment in book value during year—checks with Item 4, Column (4), Part 1A, Page 5. (See also comments on Real Estate depreciation, Parts 1 and 1A, Page 116).

The sum of the totals of Column (14), Part 1 and Column (11), Part 3—Gross income less interest on incumbrances—checks with Item 4, Column (3), Exhibit 1.

The sum of the totals of Column (15), Part 1 and Column (12), Part 3—Expended for taxes, repairs and expenses during year—checks with the sum of Items 19 and 20, Column (3), Part 4, Page 10.

The sum of the totals of Column (16), Part 1 and Column (11), Part 3—Gross income less interest on incumbrances—checks with Item 4, Column (3), Part 1, Page 5.

The sum of the totals of Column (17), Part 1 and Column (12), Part 3—

Expended for taxes, repairs and expenses during year—checks with the sum of Items 19 and 20, Column (3), Part 4, Page 10.

The total of Column (9), Part 3, checks with Item 4, Column (1), Part 1A.

The total of Column (10), Part 3, checks with Item 4, Column (2), Part 1A.

SCHEDULE B (Page 18)

The schedule proper shows "all mortgages owned December 31 of current year, and all mortgage loans made, increased, discharged, reduced or disposed of during the year". In addition, there is provided a recapitulation or classification of loans by state and by foreign country.

The schedule balances between years as follows:

	Amount unpaid December 31 of previous year . . .	\$ _____
Add:	Amount loaned during year	_____
	Total	\$ _____
Deduct:	Amount paid on account or in full during year . .	\$ _____
	Difference—equals amount unpaid December 31 of current year	\$ _____

The various checks between the schedule and the parts and exhibits follow:

The total of the column "Amount unpaid December 31 of current year" checks with Item 3 (a) and (b), Column (1), Exhibit 1.

The totals of the columns providing for interest past due* and accrued check with the amount shown in Item 3, Column (6), Part 1, Page 5.

The total of the interest column—"Gross Am't received during year", less the total of the column "Paid for accrued interest on mortgages acquired during the year", checks with the amount of Item 3, Column (3), Part 1, Page 5.

As a rule, no difficulty is experienced in preparing this schedule. Where there is a foreclosure on a mortgage, the mortgage loan account is credited with the amount of the mortgage plus any taxes or other expenses or charges, and interest on mortgage loans with the amount of interest due; the corresponding debit is to real estate account. Occasionally a mortgage is sold or a compromise settlement accepted for less than the face amount. In such event, the face amount of the mortgage should be entered in the "Amount paid" column, as the schedule makes no provision for profit or loss, and a footnote added showing the details. The net loss should be entered in Item 3, Column (2), Part 1A.

SCHEDULE C (Pages 19 and 20)

This schedule consists of three parts as follows:

Part 1—Collateral loans in force at end of year.

Part 2—Collateral loans made during the year.

Part 3—Collateral loans discharged in whole or in part during the year.

Provision is made in each part of the schedule for a record of all changes in collateral during the year. The purpose of this requirement is to show whether

* Unless "unadmitted" by statute.

or not the collateral security was adequate at all times.

The schedule balances between years as follows:

Amount of loans as of December 31 of previous year.....	\$ _____
Add: Amount loaned during the year, Part 2.....	_____
Total.....	\$ _____
Deduct: Amount repaid during the year, Part 3.....	\$ _____
Difference—equals amount of loans as of December 31, current year.....	\$ _____

The various checks between the schedule and the statement parts, and exhibits follow:

The total of Column (5), Part 1—Amount loaned—checks with Item 5, Column (1), Exhibit 1.

The totals of the interest due and accrued columns, Part 1, check with the amount of Item 5, Column (6), Part 1, Page 5.

The sum of the interest received columns in Parts 1 and 3 checks with Item 5, Column (3), Part 1, Page 5.

The preparation of this schedule presents no particular difficulties. In case a borrower defaults and the sale of the collateral does not realize a sufficient amount to pay off the loan, the loss should be shown in the manner indicated for showing the loss under a mortgage loan.

SCHEDULE D (Pages 21, 22, 23 and 24)

This schedule consists of five parts as follows:

Part 1—Bonds owned at the end of the year.

Part 2—Stocks owned at the end of the year.

Summary of bonds and stocks owned at the end of the year by classification.

Part 3—Bonds and stocks acquired during the year.

Part 4—Bonds and stocks sold, redeemed or otherwise disposed of during the year.

The schedule as a whole balances between years according to the formula set forth at the bottom of Page 23 and is similar to the formulas for the balancing of Schedules A, B, and C:

VERIFICATION BETWEEN YEARS

1. Book value of bonds and stocks, per Items 1 and 2, Exhibit 1, Column (1), previous year.....	\$ _____
2. Cost of bonds and stocks acquired, Col. (5), Part 3....	_____
3. Increase by adjustment in book value:	
(a) Col. (10), Part 1.....	\$ _____
(b) Col. (9), Part 2.....	_____
(c) Col. (9), Part 4.....	_____
4. Profit on sale of bonds and stocks, Col. (11), Part 4....	_____
5. Total.....	_____

6. Deduct consideration for bonds and stocks sold, Col. (5), Part 4..... \$ _____
7. Decrease by adjustment in book value:
- (a) Col. (11), Part 1.... \$ _____
- (b) Col. (10), Part 2.... _____
- (c) Col. (10), Part 4.... _____
8. Loss on sale of bonds and stocks, Col. (12), Part 4..... _____
9. Book value of bonds and stocks, per Items 1 and 2, Exhibit 1, Column 1, current year..... \$ _____

Part 4 of the schedule balances as follows: The difference between the book value at date of sale and the consideration received on sale equals the net profit or loss on sale, as the case may be.

Before considering checks between the schedule, the parts, and the exhibits, the reporting of additional details in case of companies valuing bonds upon the amortized basis will be considered. The increases for accrual of discount and decreases for amortization of premium are usually included in Columns (10) and (11), Part 1, and Columns (9) and (10), Part 4. Increases or decreases made for any other purpose (such as increases or decreases to adjust the book value up or down to the market value in case of bonds not subject to amortization, i.e., perpetual bonds, bonds in default as to principle or interest, and bonds not amply secured) are also included in these columns.

Where a company values its bonds on the amortized basis, changes in market values do not affect surplus except in case of bonds not subject to amortization. The book and amortized values will be the same, provided a company adjusts its book values to market values in case of bonds not subject to amortization, since for such bonds the market value will be used as the amortized value, i.e., the same amounts will be entered in both Columns (4) and (16), Part 1. Otherwise, there will be an excess in favor of one or the other basis.

Where a company values its bonds on the amortized basis, the increases for accrual of discount and decreases for amortization of premium (but not the increases or decreases to bring book value to market value in case of bonds not subject to amortization) will be entered in Columns (17) and (18), Part 1. Both types of increases or decreases will be entered in Columns (9) and (10), Part 4, as this part does not distinguish between types of increases or decreases.

The following are the various checks between the schedule and the parts and the exhibits:

The total of Column (4), Part 1, checks with Item 1, Column (1), Exhibit 1.

(Since a company may value and report its bonds on three bases and, in case of companies valuing the same on the amortized basis, may report the amortization and accrual amounts on two bases, all checks

hereinafter given, as respects columns and statement parts affected, are given for each basis, as follows:

<i>Basis of Valuation</i>		<i>Amortized Values Reflected in Book Values</i>	<i>Increases and Decreases in Amortized Values Reflected in Interest Received</i>
(a)	Market Values	—	—
(b)	Amortized Values	Yes	Yes
(c)	“ “	Yes	No
(d)	“ “	No	Yes
(e)	“ “	No	No

Bases (a), (b) and (e) are in general use. Bases (c) and (d) are theoretically possible.)

The difference between Column (4) and Column (7), Part 1, checks with Item 1, Column (2) or Column (3), Exhibit 1 on basis (a) and the increase or decrease in such difference during the year checks with Item 1, Column (5), Part 1A.

The difference between Column (4) and Column (16), Part 1, will be "0" on bases (b) and (c) and there will be no increase or decrease during the year.

The difference between Column (4) and Column (16), Part 1, will check with Item 1, Column (2) or Column (3), Exhibit 1, on bases (d) and (e) and the increase or decrease in such difference during the year will check with Item 1, Column (5), Part 1A.

The total of Column (9), Part 1—Interest due and accrued—checks with Item 1, Column (6), Part 1, on each basis.

The sum of the totals of Column (9), Part 1 and Column (13), Part 4—Interest received—less the interest portion of Column (7), Part 3—checks with Item 1, Column (3), Part 1 of statement on bases (a), (c) and (e).

The sum of the totals of Columns (9)—interest received—and Column (17), Part 1, Column (9)—amount representing accrual of discount*—and Column (13), Part 4, minus the sum of Columns (18), Part 1, (7)—accrued interest on bonds—Part 3 and Column (10)—amount representing amortization of premium*—Part 4, checks with Item 1, Column (3), Part 1 of statement on bases (b) and (d). See also footnote "a", Part 1, Page 5.

The sum of the totals of Column (10), Part 1 and the bond portion of Column (9), Part 4, checks with Item 1, Column (3), Part 1A on bases (a), (d) and (e).

The sum of the totals of Column (11), Part 1, and the bond portion of Column (10), Part 4, checks with Item 1, Column (4), Part 1A on bases (a), (d) and (e).

The difference between the totals of Columns (10) and (17), Part 1, plus the bond portion of Column (9), Part 4, representing increases other than for accrual of discount, checks with Item 1, Column (3), Part 1A on bases (b) and (c).

*Columns (9) and (10), Part 4, include all "increases" and "decreases"—those affecting amortized values and those made for other purposes (such as adjustments to bring amortized values to market values or vice versa).

The difference between the totals of Columns (11) and (18), Part 1, plus the bond portion of Column (10), Part 4, representing decreases other than for amortization of premium, checks with Item 1, Column (4), Part 1A on bases (b) and (c).

Column (12), Part 1, is included for informative purposes only.

The total of Column (4), Part 2, checks with Item 2, Column (1), Exhibit 1.

The difference between Column (4) and Column (6), Part 2, checks with Item 2, Column (2) or Column (3), Exhibit 1, and the increase or decrease in such difference during the year checks with Item 2, Column (5), Part 1A.

The sum of the totals of Column (8), Part 2 and Column (14), Part 4—Dividends received—less the dividend portion of Column (7), Part 3, checks with Item 2, Column (3), Part 1 of statement.

The sum of the totals of Column (9), Part 2 and the stock portion of Column (9), Part 4 checks with Item 2, Column (3), Part 1A.

The sum of the totals of Column (10), Part 2, and the stock portion of Column (10), Part 4 checks with Item 2, Column (4), Part 1A.

The bond portion of Column (11), Part 4, checks with Item 1, Column (1), Part 1A.

The bond portion of Column (12), Part 4, checks with Item 1, Column (2), Part 1A.

The stock portion of Column (11), Part 4, checks with Item 2, Column (1), Part 1A.

The stock portion of Column (12), Part 4, checks with Item 2, Column (2), Part 1A.

Infrequent and unusual transactions sometimes present questions as to the proper reporting of the same in the various parts of the schedule, keeping in mind that the schedule must balance between years according to the formula set out on Page 23 of the blank. The following comments cover the schedule entries for such transactions as are most generally met with in practice:

Stock Dividends. Since, as a rule, stock dividends are not income, the proper method of reporting the same in the schedule is to enter them on Part 3, giving description, date acquired and par value as called for. Under name of vendor, the notation "Stock Dividend" should be made. The cost to Company should be "0". The accounting and schedule entries on subsequent sale of stocks acquired as a stock dividend should conform to Federal income tax requirements. See "Regulation 111—Income Tax—Internal Revenue Code" and Supplements thereto.

Sale of Rights. The total proceeds from sale of stock rights do not represent profit. The major portion of the proceeds represents a return of capital and the profit or loss is usually a comparatively small amount. For this reason the simplest method of handling the accounting for annual statement purposes is to assume no profit or loss on sale of rights but to credit book value with the full amount of the proceeds. In such case the entries in Schedule D, Part 4, are as follows:

In the description column, the number of "Rights" should be inserted before the name of the stock; "0" in the par value column;

the consideration received (total proceeds) in both the cost to company and the book value at date of sale columns.

However, it is preferable to determine the actual profit and loss in accordance with Federal income tax requirements, particularly to establish an adjusted cost in the event of subsequent sale of stock holdings. For determination of the actual profit or loss and adjusted cost, see "Regulations" referred to above.

Transfers to Schedule X. The approved method of treating transfers to Schedule X—Unlisted Assets (see Page 137)—is to decrease the book value to "0" by profit and loss entry. The usual entries are made in Part 4 of the schedule, "0" being entered in the consideration and book value at date of sale columns; the date charged off in the date sold column; and the notation "Transferred to Schedule X" in the name of purchaser column.

Transfers from Schedule X. Transfers from Schedule X (reinstatement of assets previously transferred) must pass through Part 3 (Schedule D). The following entries should be made:

The usual entries will be made in the description and par value columns; the date of transfer in the date acquired column; the notation "Transferred from Schedule X" in the name of vendor column and "0" in the cost to company column. An increase by adjustment should be made in Part 1 to re-establish the book value; also the original cost should be entered in the actual cost column of Part 1.

Receipts in Form of Securities. Receipts are not always in cash but sometimes consist of securities. This frequently happens where reinsurance of all the outstanding risks of a company is effected. In such cases the value fixed upon the securities should be considered as the purchase price and properly entered in Schedule D, Part 3, in case of the accepting company, or as the sale price and properly entered in Schedule D, Part 4, in case of the ceding company. The "Name of Vendor" in Part 3 will be the ceding company and the "Name of Purchaser" in Part 4 will be the accepting company. A similar rule would apply to any securities received as salvage and included in Parts 1 or 2. The fair market value would be reported as salvage recovered, and such value entered in the "Cost to Company" column of Schedule D, Part 3, since the transaction (from an accounting standpoint) is exactly the same as if the company received the amount in cash and immediately invested it in the security in question. The "Name of Vendor" will show the notation "Salvage Recovery."

Exchange of Securities. Exchanges of securities may arise from pure "swaps" carried out through a broker, but more frequently result from "reorganizations". The schedule accounting procedure in general is as follows:

Part 4—The book value of the old securities at the date of exchange should be considered as the sale price.

Part 3—The book value of the old securities at the date of exchange, minus the cash received or plus the cash paid, if any, will be considered as the purchase price (cost to company) of the new securities and the actual cost for Part 1 or 2.

Note that the foregoing assumes no profit or loss involved in the transaction. This will be the situation in most instances. The rule, however, does not apply if a book profit or loss is involved, and in such rare instances each transaction must be handled in accordance with the particular circumstances. See also "Regulations" previously referred to.

Where bonds are exchanged for part bonds and part stocks, an apportionment of the book value of the old securities (bonds) will be necessary for determining the respective costs of the new securities (bonds and stocks), taking into consideration also any cash received or paid in connection with the exchange. No fixed rule can be given. In some instances stock received on reorganization represents potential future value only, and where this is the case it is a question of whether or not the new stock should be assigned any book value or cost. Each transaction must be considered in the light of the particular circumstances. See also "Regulations" previously referred to.

Stock Split-Ups. Where stock of a certain par value is exchanged for a larger number of shares of the same class of stock of a smaller par value, the transaction should be carried through Parts 3 and 4 of Schedule D, treating the book value at the date of exchange as the sale price for Part 4 and the purchase price for Part 3. As the change is one of form only, no profit or loss on sale should be considered and on Part 2 of the schedule the amount to be entered in the cost to company column should be the cost of the original stock.

SCHEDULE E (Page 25)

AMOUNTS RECOVERABLE ON PAID AND UNPAID LOSSES

This schedule contemplates the reporting of all reinsurance recoverable, both authorized and unauthorized, for all lines of business combined. (The schedule in the previous blank excluded reinsurance recoverable on the liability and compensation lines.)

The grand total of Column (1) checks with Item 11, Page 2, and the grand total of Column (2) checks with the total of Column (3), Part 3A.

Separate totals should be made for authorized companies and for unauthorized companies. The totals of Columns (1) and (2) for unauthorized companies will check with the corresponding amounts of Item 14 (b), Page 3.

SCHEDULE F (Page 26)

This schedule is divided into three sections, as follows:

Part 1 (a)—Ceded Reinsurance as of December 31, current year

Part 1 (b)—Portfolio Reinsurance effected during last three months of current year

Part 2 —Funds withheld on account of reinsurance in unauthorized companies as of December 31, current year

All the sections are new in the 1951 Convention Blank.

PART 1 (a)

Although this section is new as a Convention form, a similar form has been required by certain individual states and was contemplated in the 1950 blank. (See heading of Part 2A, Column (6) "Deduct Reinsurance in Force (Schedule

F) Authorized and Unauthorized companies"). It is believed that the section contemplates a division between "authorized" and "unauthorized" companies.

The new part differs from the previously contemplated part in that it requires the "Unearned Premiums (Estimated)" on such reinsurance in force for each individual reinsurer.

The report of the Committee on Blanks, National Association of Insurance Commissioners, contained no suggestions as to methods to be used in estimating the unearned premium reserve on ceded reinsurance by company, and the methods employed by individual companies will depend upon the basic punch card data available. Some direct writing casualty companies, because of a small volume of reinsurance ceded, may be in a position to compute the unearned premium reserve accurately for each authorized and unauthorized company. Where the volume of such reinsurance involves a large number of reinsuring companies, such method may not be practicable. In such instance the following method might produce sufficiently accurate results:

1. Compute the total unearned premium reserve for all companies combined (authorized and unauthorized).
2. Compute the unearned premium reserve accurately for each unauthorized company.
3. Subtract the total of 2 from 1.
4. Compute ratio of 3 to total premiums in force for authorized companies.
5. Apply ratio from 4 to the premiums in force for each authorized company.

In the case of portfolio reinsurance* a modification of the above method would be necessary.

The foregoing represents the author's idea of a method that might be acceptable, but he does not guarantee its acceptability. It is possible that in due course the Committee on Blanks will suggest methods for estimating the ceded reinsurance unearned premiums.

Question might be raised as to the necessity of including in the section the unearned premium reserve by company for authorized companies.

PART 1 (b)

The apparent purpose of this section is to provide information on the matter of whether a company has ceded a substantial amount of its liability in order to temporarily improve its financial condition or has assumed a substantial amount of the liability of a company to temporarily improve the financial condition of such ceding company.

The column "Amount of Original Premiums" contemplates the aggregate gross policy premiums for the full terms of the policies and the column "Amount of Reinsurance Premiums" contemplates the aggregate pro rata unearned premiums, at date of cession or acceptance, for the unexpired portions of the terms of such policies, without deduction for any commissions received or paid on such premiums.

PART 2

The purpose of this section is, as stated on Page 115, to permit the ceding company to offset liabilities for unauthorized reinsurance by deposits made

*In general, the transfer in whole, or in part, of liability on policies in force, by one company to another company, or companies. Such reinsurance may include a single line or combination of lines, or the entire business of the ceding company.

with the company, by funds withheld by the company, and by any other balances payable to unauthorized accepting companies—each unauthorized company being considered as an entity.

The sources of the data to be included in each column of the section are as follows:

Column (1)—Part 1 (a)—Unauthorized companies. Total for unauthorized companies checks with Item 14 (a), Page 3.

Column (2)—Schedule E, Columns (1) and (2)—Unauthorized companies. Totals of Columns (1) and (2) of Schedule E for unauthorized companies check with the respective inside amounts of Item 14 (b), Page 3.

(The foregoing assumes that entries for all unauthorized companies will be entered in this section of the schedule. The entries may be limited to companies where an "offset" is involved. In such case the checks stated under Columns (1) and (2) will not apply.)

Column (4)—That part of Item 12, Page 3, applicable to unauthorized companies. (It is assumed that "deposits" are included in the company assets and also included as a liability (ledger) in Item 12, Page 3.)

Column (5)—That part of Item 8, Page 2, representing "reinsurance balances payable", applicable to unauthorized companies, plus any other credits due unauthorized companies not otherwise reflected; but subject to requirements of any state having laws governing such credits.

The total of Column (6) checks with Item 15 (Amount of deduction), Page 3.

SCHEDULE G (Page 27)

DEVELOPMENT OF NET UNPAID FIDELITY AND SURETY LOSSES AND CLAIMS

This schedule shows the developments to date of unpaid losses and claims outstanding as of the ends of the seven calendar years prior to the year of statement. Its purpose is to indicate whether or not a company is maintaining adequate loss reserves for these lines of business. The test for any particular year's reserve consists of comparing the total of the amount paid to date plus the present (current year) liability or reserve with the reserve as of December 31st of the year under consideration.

For example, to determine the adequacy of the reserve as of December 31, 1944, in view of subsequent developments the total amount paid during the period 1944-1950 on losses and claims outstanding December 31, 1944, plus the liability or reserve on such losses and claims still unpaid December 31, 1950, is compared with the liability or reserve set up as of December 31, 1944.

The schedule is based upon known losses and claims outstanding, i.e., excludes reserves for losses and claims incurred but not reported.

The amounts in Column (2), unpaid December 31, 1950, in the 1951 statement will check with the amounts in Items 22 and 23, Column (4), Part 3A of the 1950 statement and the amounts unpaid as of December 31st of previous years, check with Items 5 and 6, Column (4), Page 5 of the respective statements for one year previous.

SCHEDULE K (Page 27)**RESERVE FOR CREDIT LOSSES**

This schedule, with the additional provision for "Voluntary reserve", is designed to provide the same loss reserve data as required by Items 17 and 18, Page 5 of the previous blank.

The reserve is determined in part on the basis of known reported losses and in part on a loss ratio or formula basis similar to the Schedule P formula applicable to the three most recent policy years.

Only two companies, within the knowledge of the author, write this line. The 1950 annual statement of one of these companies shows the following method of implementing the reserve into the statement proper:

The net amounts of Items 1, 2(e), and 3(e) are carried to Item 27, Column (4), Part 3A. The corresponding *gross* amounts are entered in Column (1) and the *reinsurance recoverable* in Column (3). Column (5) shows "0". The difference between Item 5 of the schedule and the sum of Items 1, 2(e), and 3(e) is reported as a written-in item on Page 3 of the statement, designated as Item 16A—"Excess of credit statutory reserve over specific Reserves". The method follows that provided for reporting the aggregate reserve for liability and compensation losses.

SCHEDULE L (Page 27)**RATES OF DIVIDENDS IN EFFECT DECEMBER 31**

This schedule is informative only and applies only to companies writing participating policies. Note that it requires rates of dividends in effect at the end of the year and not rates paid during the year.

SCHEDULE M (Pages 28 and 29)

This schedule, consisting of four parts, is intended to supply certain information considered desirable by supervising insurance officials. There are no checks between the various parts and the statement proper. The headings of the various parts are self-explanatory.

SCHEDULE N (Page 30)**BANK BALANCES**

This schedule shows the bank balances in each of the Company's depositories (according to company's records) at the end of each month of the calendar year; also the rate of interest on each account and the amount of interest received during the year. The amount of interest received checks with Item 6, Column (3), Part 1.

The division between "Open" and "Suspended" banks is not important at the present time.

SCHEDULE O—PART 1 (Page 31)**TEST OF LOSS RESERVES**

This schedule is designed to test by lines of business (excluding liability and compensation, fire and allied lines, ocean and inland marine, but including auto physical damage), the adequacy of loss reserves set up in the previous year's statement viewed in the light of developments one year later—as of the date of the current year's statement. For lines other than fidelity and

surety the test is made upon the basis of the total loss reserve (the reserve for known claims plus the estimated reserve for incurred but not reported claims). In case of fidelity and surety the test is made upon the basis of the loss reserve for known claims only.

The schedule contains certain data which is not essential to producing the results desired but which is incorporated for purposes of check and audit with the financial section and other schedules.

Briefly, the rationale of the test is as follows: The excess or deficiency in reserve, Column (11), is equal to the difference between (a)—the sum of the amount paid during the current year on previous years' claims, Column (2) and the loss reserve on previous years' claims still outstanding at the end of the current year, Column (6), and (b)—the reserve at the end of the previous year, Column (10); or to summarize algebraically:

Column (11) = Column (2) + Column (6) - Column (10)

or since Column (2) + Column (6) = Column (9)

Column (11) = Column (9) - Column (10)

The preparation of the schedule requires the maintenance of certain special statistical records which it may be of interest to note.

Net amount paid for losses must be divided as follows:

(a)—on losses incurred in previous years

(b)—on losses incurred in the current year

Reinsurance recovered during the current year must be subdivided as follows:

(a)—on losses incurred in the current year and paid in the current year

(b)—on losses incurred in previous years but paid in the current year

(c)—on losses incurred in previous years and paid in previous years

Salvage recovered during the current year must be subdivided in the same manner as reinsurance.

The schedule is subject to the following checks with the financial section and other schedules:

Column (5), (Cols. 2 + 3 - 4) checks by line with Items 12-15 and 19-29, Column (4), Part 3.

Column (8), (Cols. 6 + 7), checks by line with Items 12-15, 19-21 and 24-29, Column (6), Part 3A, and with Items 22 and 23, Column (4), Part 3A.

Column (10) checks by line with Items 12-15, 19-21 and 24-29, Column (8), Part 3 of the current year's statement and with Items 22 and 23, Column (4), Part 3A of the previous year's statement.

Note that the amounts shown in Column (4) do not enter into the development of the increases or decreases in the estimated liabilities by line at the end of the previous year. This is due to the fact that salvage recovered on settled losses, because of uncertain or intangible value, is not considered in determining loss reserves. The schedule is a test of reserve adequacy based upon actual and estimated liabilities without discounting the same for possible estimated recoveries of an uncertain or intangible value. Reinsurance recovered on settled losses does not affect the determination of the increase or decrease since the reinsurance to be reported in Column (4) contemplates only reinsurance which was carried

as a non-ledger asset in the previous year's statement. Consequently such reinsurance, when recovered, should not be used as a credit against the loss reserve of the previous year.

Note also that Items 4 and 5, Columns (2), (6), (9), (10) and (11), check with the corresponding items in Schedule G, Columns (3), (4), (5), (2) and (6) respectively for the latest of the previous year's amounts.

SCHEDULE O—PART 2 (Page 31)

TEST OF NON-CANCELLABLE ACCIDENT AND HEALTH RESERVES

This schedule is designed to test the adequacy of loss reserves for a development period of two years, for the non-cancellable accident and health line on an accident year basis.

The amount of the incurred claims (last column) for the current calendar year checks with Item 3, sum of Columns (3) and (7), Schedule O, Part 1.

SCHEDULE P—(Pages 32, 33, 34 and 35)

LIABILITY AND COMPENSATION LOSS AND LOSS EXPENSE RESERVES

The make-up of this schedule conforms in general to the requirements of the standard liability and compensation loss reserve laws. (See for example New York Insurance Law, Section 326.)

The schedule is divided into seven parts as follows:

- Part 1 —Reserve for unpaid liability losses.
- “ 2 —Reserve for unpaid workmen's compensation losses.
- “ 3 —Distribution of unallocated liability claim expenses.
- “ 4 —Distribution of unallocated compensation claim expenses.
- “ 5 —Development of incurred auto liability losses.
- “ 5A—Development of incurred liability other than auto losses.
- “ 5B—Development of incurred compensation losses.

The schedule was revised effective with the 1950 annual statement blank. The principal changes from the old schedule are as follows:

Part 1 of the schedule, which previously provided for auto liability and liability other than auto combined, has been divided into three sections:

SECTION A. AUTO LIABILITY BASIC DATA

SECTION B. LIABILITY OTHER THAN AUTO BASIC DATA

COMPUTATION OF RESERVE (SECTIONS A AND B COMBINED)

The columns previously providing for the reporting of case-basis reserves in Part 1, Sections A and B, and Part 2, have been superseded by two columns, one providing for pure loss case-basis reserves and the other for loss expense reserves, both allocated and unallocated.

PART 1

RESERVE FOR UNPAID LIABILITY LOSSES

The headings of the various columns are self-explanatory.

The various checks to which this part of the schedule is subject are as follows:

For each section the difference between the totals of Column (1) of the current and previous year's schedules checks with Items 18 and 17

respectively, Column (4), Part 2, of the current year's statement.

For each section the difference between the totals of Column (1) and the unearned premium reserves, Items 18 and 17 respectively, Column (6), Part 2 (of statement), checks with the totals of Column (2).

For each section the difference between the totals of Column (3) of the current and previous year's schedules checks with Items 18 and 17 respectively, Column (4), Part 3 of the current year's statement.

The amounts in Columns (4) and (5) of the schedule do not check with the financial statement, since no division of loss expense payments by line of business is provided for in the statement proper. The calendar year unallocated claim expense is, however, shown separately on Part 3 of the schedule where it is distributed to policy years upon the percentages prescribed in the standard liability and compensation loss reserve laws.

For each section the totals of Column (12) check with Items 18 and 17, respectively, Column (6), Part 3A (and Column (7), Part 3).

For each section the totals of Column (12½) check with Items 18 and 17, respectively, Column (7), Part 3A.

The computation of the reserve section requires no particular comments except to note that in computing the formula reserve the basic data for Sections A and B are combined for the three most recent policy years to produce the amounts to be entered in Columns (15), (16) and (18), also the amount to be entered in Item 24, reserve for policy years prior to the three most recent, is based upon combined data for the two sections. The reason for such combining is that the standard liability and compensation loss reserve laws do not differentiate between auto liability and liability other than auto. If the formula reserves were computed separately for each section, the aggregate reserve might exceed the statutory requirements.

PART 2

RESERVE FOR UNPAID WORKMEN'S COMPENSATION LOSSES

This part is similar to Part 1. The various checks to which the part is subject are similar to Part 1 and are as follows:

The difference between the totals of Column (1) of the current and previous year's schedules checks with Item 16, Column (4), Part 2, of the current year's statement.

The difference between the total of Column (1) and the unearned premium reserve, Item 16, Column (6), Part 2 (of statement), checks with the total of Column (2).

The difference between the totals of Column (3) of the current and previous year's schedules checks with Item 16, Column (4), Part 3 of the current year's statement.

The amounts in Columns (4) and (5) of the schedule do not check with the financial statement for the reason heretofore stated. The calendar year unallocated claim expense is, however, shown separately on Part 4 of the schedule where it is distributed to policy years upon the percentages prescribed in the standard liability and compensation loss reserve laws.

The total of Column (10) checks with Item 16, Column (6), Part 3A (and Column (7), Part 3).

The total of Column (10½) checks with Item 16, Column (7), Part 3A.

There is appended a form designated "Supplemental Work Sheet to Schedule P—Parts 1 and 2" included as a part of the "Procedures" hereinbefore referred to, which may be of assistance in readily determining the amounts to be distributed to Items 16, 17 and 18, Part 3A and Item 16, Page 3.

PARTS 3 AND 4

DISTRIBUTION OF UNALLOCATED CLAIM EXPENSES

These parts are self-explanatory. As heretofore pointed out, there is no check between the amounts and the financial statement proper. However, the following checks exist between these parts and Parts 1 and 2 of the schedule:

The "Totals" of Parts 3(A) or (B) check with Column (5) (Grand Total), Part 1.

The "Totals" of Part 4(A) or (B) check with the total of Column (5), Part 2.

PARTS 5, 5A AND 5B

TESTS OF LOSS RESERVES

These parts are designed to provide a test of adequacy of loss reserves, policy year by accident year, for a five calendar year "run off" period for each policy-accident year division. For accident years 1950 and subsequent, the test is restricted to case basis losses, excluding loss expense.

The following are the checks between these parts and Parts 1 and 2 of the schedule. (It is assumed that the development of incurred losses is based upon case basis loss reserves only):

Parts 5 and 5A—The sum of the amounts in the final column for each policy year checks with the sum of the amounts in Columns (3) and (12), Part 1, Sections A and B, respectively for each such policy year.

Part 5B—The sum of the amounts in the final column for each policy year checks with the sum of the amounts in Columns (3) and (10), Part 2, for each such policy year.

SCHEDULE X (Page 36)

UNLISTED ASSETS

This schedule consists of three parts as follows:

Part 1—Unlisted assets held as of December 31.

" 2—Unlisted assets acquired or transferred from other asset schedules during the year.

" 3—Unlisted assets sold or transferred to other asset schedules during the year.

The information called for by the column headings of the various parts is similar to that of the various investment schedules (A, B, C and D).

The schedule contemplates two types of assets: investments which, because of developments since acquisition, make their future value uncertain, and investments required to be made in the stock of certain companies allied to the insurance industry, or deposits made with bureaus servicing insurance companies such as adjustment bureaus, where the purchase of stock or the making of a deposit is required as a condition precedent to membership in the company or bureau. In the case of stock of the last mentioned type, the

stock transactions are usually reflected in Schedule D, Parts 3 and 4.

The schedule does not contemplate salvage assets.

PART 1

UNLISTED ASSETS OWNED

Attention is called to the column "Book Value When Charged Off". The caption of the column is not clear and is not uniformly interpreted. The intent apparently is to show the book value before the profit and loss adjustment, reducing the same to "0" (See comments on "Transfers to Schedule X," Page 129), and most companies adopt this interpretation. However, since such adjustment precedes the transfer, a literal interpretation of the heading contemplates the entry of "0" in the column. This interpretation is followed by a minority of companies. Assets which have never been carried in the investment schedules or not otherwise reflected in the ledger assets of the company, would of course show "0" in this column.

PART 2

UNLISTED ASSETS ACQUIRED OR TRANSFERRED TO SCHEDULE

This part, as previously indicated, provides for reporting both assets acquired during the year and not included in ledger assets and transfers from investment or other ledger asset accounts.

PART 3

UNLISTED ASSETS SOLD OR TRANSFERRED FROM SCHEDULE

This part contemplates two types of transactions—the restoring of assets previously charged off to the ledger assets and investment schedules, and the sale of assets included in the schedule.

In the first instance the column "To Whom Sold" should carry the notation "Transferred to Schedule (applicable designating letter)" or "Transferred to Ledger Assets" if a non-scheduled item. See specific comments under "Schedule D—Transfers from Schedule X", Page 129.

In the case of a sale there is always a profit, so far as the schedule is concerned, since the item is not included in the ledger assets. Two methods are available for reporting the results of the transaction. The sale price may be considered as profit on sale and included in the applicable item of Column (1), Part 1A. The asset, if a schedule item, may be reinstated and the transaction reflected in the acquired and sold parts of the applicable schedule. In such case (using Schedule D for illustration), the notation "Transferred from Schedule X" would be entered in Column (3), Part 3, and the original cost in Column (5). In Part 4 the usual data would be entered in Columns (1)–(7); Column (8) would show the book value immediately prior to the original transfer to Schedule X; and Column (9) would show the same amount as in Column (8). The profit or loss on sale would then be the difference between Columns (5) and (8).

Of the two methods the second produces consistency between the original transaction and the subsequent disposal since the original decrease by adjustment is offset by the subsequent increase by adjustment; and further, such method is more consistent with Federal income tax requirements.

Income received from assets in Schedule X, Parts 1 and 3, may be reported

as miscellaneous income (profit and loss), or under the classification "Unlisted Assets" in Column (3), Part 1 of statement.

SCHEDULE T—PARTS 1 AND 2 (Pages 37 and 38)

This schedule is supplementary to the annual statement proper and is designed primarily for substantiating written premium data entering into state tax returns.

PART 1

PREMIUMS, DIVIDENDS AND LOSSES BY STATES

Only Columns (1) and (5) appear to have any particular significance.

The following checks apply:

The totals of Columns (1)–(4) check with the totals of Columns (1)–(4), Part 2 of statement.

The sum of the totals of Columns (5) and (6) checks with Item 16, Page 12, where dividends on reinsurance assumed exceed dividends on reinsurance ceded, and the difference between the totals of Columns (5) and (6) checks with Item 16, Page 12, where dividends on reinsurance ceded exceed dividends on reinsurance assumed.

The total of Column (7) checks with the total of Column (1), Part 3 of statement.

PART 2

METHOD OF ALLOCATION OF PREMIUMS BY STATE

This part requires no particular comment.

* * * *

As hereinbefore stated, all item and other references are to the 1951 annual statement blank. Since changes involving item, column or other references are occasionally made by the Committee on Blanks of the National Association of Insurance Commissioners, any person reading this paper in the future and using the latest year's blank should carefully check the references in the paper and, where any references do not conform to such blank, refer to the 1951 blank and make such marginal corrections in the paper as are necessary to bring the same into conformity with the latest year's blank.

SUPPLEMENTAL WORK SHEET TO SCHEDULE P—PARTS 1 AND 2
Distribution of Total Reserves for Unpaid Liability and Compensation Losses

	Part 1		Part 2	Distribution
	Sec. A.	Sec. B.		
(1) Unpaid Losses (Case basis)	Total Col. (12)	Total Col. (12)	Total (B) Col. (10)	To Items 18, 17 and 16 Page 9 Part 3A, Col. (6)
(2) Unpaid Loss Adjustment Expenses	Total Col. (12½)	Total Col. (12½)	Total Col. (10½)	To Items 18, 17 and 16 Page 9 Part 3A, Col. (7)
(3) Total (1) + (2)			X X X X	
	Sec. A. plus Sec. B.			
(4) Total Part 1, Sec. A. + B. and Part 2	X X X X			X X X X
(5) Schedule "P" Reserve less voluntary reserve	X X X X	Line (26) minus Total Col. (20)	Line (24) minus Total Col. (18)	X X X X
(6) Difference (5) - (4)	X X X X	(A)	(A)	X X X X
(7) Voluntary reserve	X X X X	Total Col. (20)	Total Col. (18)	X X X X
(8) Total (6) + (7)	X X X X			Total Parts 1 and 2 To Item 16, Page 3

(A) If negative enter "0".

(B) Subscribers to Workmen's Compensation Reinsurance Bureau should include their share of W.C.R.B. Loss Reserves if not included by policy year in Schedule P.

THE MAKING OF WORKMEN'S COMPENSATION RATES, AS ILLUSTRATED BY THE 1951 PENNSYLVANIA RATE REVISION

BY

GEORGE B. ELLIOTT

The Pennsylvania system of making workmen's compensation rates differs in many important respects from the systems used in other states. No attempt will be made to enumerate these differences, nor to comment upon them in other than a general way. Rather, this paper will simply describe how rates are made in Pennsylvania, using the July 1, 1951 rate revision as an example. Since no description of the Pennsylvania system has appeared in the *Proceedings* of the Society since 1919,¹ this paper should be of interest to the members of the Society.

Pennsylvania workmen's compensation rates are based solely on Pennsylvania experience, and since the Manual contains but 195 classifications (including 8 voluntary classes) it is possible to review the relativity for every classification at each rate revision. The experience used for Manual rate-making purposes is that of the five most recent policy years and is exclusive of the experience of minimum premium risks, as well as that of the larger risks (those with a credibility of 75 per cent or more for experience rating). For the July 1, 1951 rate revision, the experience period covered the five policy years 1944 to 1948, inclusive, and the procedure followed in this revision is described in the following pages.

MODIFICATION OF EXPERIENCE

A. PAYROLL MODIFIERS

The first step, after tabulation of the raw experience, was the selection of modifiers applicable to payrolls. These modifiers were based on weekly compensation wages as shown on the reports of Temporary accidents—of which there are some 35,000 to 40,000 each year. The average weekly wage was calculated for each policy year for each of the three major industry divisions—Manufacturing and Utilities, Contracting and Quarrying, and All Other. The average wages for each policy year were plotted on a graph and the trend line projected to the midpoint of the period during which the rates were to be effective (see Appendix, Graph I). Payroll multipliers were then calculated from the ratios of the projected wages to the wages for each policy year, as shown in the following table:

¹"The Revision of Pennsylvania Compensation Insurance Rates, 1918,"—E. H. Downey and G. C. Kelly (Vol. V, p. 243).

TABLE A
AVERAGE WEEKLY WAGES AND PAYROLL MULTIPLIERS

Policy Year (1)	<i>Manufacture</i>		<i>Contracting</i>		<i>Other</i>	
	<i>Average Weekly Comp. Wages</i> (2)	<i>Payroll Multi- plier</i> (3)	<i>Average Weekly Comp. Wages</i> (4)	<i>Payroll Multi- plier</i> (5)	<i>Average Weekly Comp. Wages</i> (6)	<i>Payroll Multi- plier</i> (7)
1944	\$43.10	1.51	\$49.20	1.52	\$33.69	1.54
1945	44.17	1.47	48.70	1.54	35.22	1.48
1946	44.38	1.46	49.94	1.50	37.05	1.40
1947	49.37	1.32	55.15	1.36	40.26	1.29
1948	53.69	1.21	61.14	1.23	42.93	1.21
1949	56.33	1.15	64.30	1.17	45.43	1.14
1950	57.96	1.12	67.25	1.12	48.74	1.07
1951-52*	65.00	1.00	75.00	1.00	52.00	1.00

* 7-1-51 to 7-1-52.

B. LOSS MODIFIERS

Following the calculation of payroll modifiers, the next step was the determination of loss modifiers to be applied to compensable cases, other than Death and Permanent Total.

1. *Temporary Disability.* Modifiers for cases of Temporary disability were based on the average weekly compensation for each policy year and for each industry division. These averages were plotted on a graph and a projection made to the mid-point of the rate revision year (see Appendix, Graph I). Compensation multipliers applicable to cases of Temporary disability were then calculated in the same way as payroll multipliers. The Temporary Compensation multipliers serve a dual purpose—they modify the weekly compensation as reported to take account of wage changes, and also provide for changes in benefit levels. The Compensation and Occupational Disease Acts were amended as of July 1, 1945, increasing the weekly maximum from \$18 to \$20, and again as of July 1, 1949, increasing the maximum from \$20 to \$25. These benefit changes account for the divisions shown for policy years 1944, 1945, 1948 and 1949 in the following table:

TABLE B
AVERAGE WEEKLY COMPENSATION AND TEMPORARY
COMPENSATION MULTIPLIERS

<i>Policy Year (1)</i>	<i>Manufacture</i>		<i>Contracting</i>		<i>Other</i>	
	<i>Ave. Weekly Comp. (2)</i>	<i>Comp. Multi- plier (3)</i>	<i>Ave. Weekly Comp. (4)</i>	<i>Comp. Multi- plier (5)</i>	<i>Ave. Weekly Comp. (6)</i>	<i>Comp. Multi- plier (7)</i>
1944	\$17.47	1.42	\$17.89	1.40	\$16.23	1.43
Before 7-1-45	17.37	1.42	17.73	1.41	16.11	1.44
After 7-1-45	19.00	1.30	19.64	1.27	17.77	1.31
1945	18.64	1.33	19.24	1.30	17.50	1.33
Before 7-1-45	17.51	1.41	17.80	1.40	16.33	1.42
After 7-1-45	19.14	1.29	19.58	1.28	17.83	1.30
1946	19.35	1.28	19.65	1.27	18.12	1.28
1947	19.56	1.27	19.75	1.27	18.47	1.26
1948	19.90	1.24	20.15	1.24	18.92	1.23
Before 7-1-49	19.67	1.26	19.81	1.26	18.67	1.25
After 7-1-49	23.96	1.03	24.74	1.01	22.57	1.03
1949	22.80	1.09	23.56	1.06	21.76	1.07
Before 7-1-49	19.81	1.25	19.87	1.26	18.79	1.24
After 7-1-49	24.24	1.02	24.75	1.01	22.79	1.02
1950	24.50	1.01	24.76	1.01	23.00	1.01
1951-52*	24.75	1.00	25.00	1.00	23.25	1.00

* 7-1-51 to 7-1-52.

2. *Major and Minor Permanent.* Cases of Major Permanent and Minor Permanent disability were individually revalued as though they had occurred under the benefit level in effect at the time of the rate revision. Weekly compensation in each case was based upon the weekly wage as reported at the time of injury, so that a further modification was necessary to take account of the increase in wages since the date of injury. For this purpose, the average weekly compensation rate as reported was recalculated on the basis of current benefit levels, for each policy year and industry division. The corresponding multipliers to be applied to the compensation portion of Major and Minor Permanent disability cases were then determined, as shown in the following table:

TABLE C
 AVERAGE WEEKLY COMPENSATION TRANSLATED TO 7-1-49
 BENEFIT LEVEL AND COMPENSATION MULTIPLIERS
 APPLICABLE TO MAJOR AND MINOR PERMANENT CASES

Policy Year (1)	Manufacture		Contracting		Other	
	Ave. Weekly Comp. (2)	Comp. Multi- plier (3)	Ave. Weekly Comp. (4)	Comp. Multi- plier (5)	Ave. Weekly Comp. (6)	Comp. Multi- plier (7)
	1944	\$22.37	1.11	\$23.58	1.06	\$19.74
Before 7-1-45	22.38	1.11	23.55	1.06	19.68	1.18
After 7-1-45	22.29	1.11	23.83	1.05	20.48	1.14
1945	22.69	1.09	23.64	1.06	20.36	1.14
Before 7-1-45	22.82	1.08	23.69	1.06	20.19	1.15
After 7-1-45	22.63	1.09	23.62	1.06	20.41	1.14
1946	23.04	1.07	23.78	1.05	20.89	1.11
1947	23.66	1.05	24.12	1.04	21.59	1.08
1948	23.99	1.03	24.41	1.02	22.05	1.05
Before 7-1-49	23.99	1.03	24.39	1.03	22.01	1.06
After 7-1-49	23.96	1.03	24.74	1.01	22.57	1.03
1949	24.28	1.02	24.68	1.01	22.64	1.03
Before 7-1-49	24.36	1.02	24.46	1.02	22.19	1.05
After 7-1-49	24.24	1.02	24.75	1.01	22.79	1.02
1950	24.50	1.01	24.76	1.01	23.00	1.01
1951-52*	24.75	1.00	25.00	1.00	23.25	1.00

* 7-1-51 to 7-1-52.

3. *Death and Permanent Total.* Cases of Death and Permanent Total disability were individually revalued as though they had occurred under current benefit levels and average values were determined for each of seventeen industry groups. These averages were further modified to take account of wage changes which occurred subsequent to the date of injury. Multipliers applicable to the compensation portion of these cases to account for wage changes were calculated in the following manner; The total revalued cost (including funeral and medical) of the 1,889 Deaths and 334 Permanent Totals occurring in the five years 1944-1948 was \$13,174,292, of which \$1,021,328 (or 7.75 per cent) was medical cost and hence not subject to compensation multipliers. The appropriate multipliers applicable to the whole cost of Death and Permanent Total cases were therefore calculated by applying the ratio of (1.000 - .0775) or .9225 to the increments of Table C above.

The resulting factors, when weighted by the number of cases in the whole experience (excluding dust disease cases) were as follows:

TABLE D
COMPENSATION MULTIPLIERS—DEATH AND PERMANENT TOTAL

Policy Year	Manufacture			Contracting			Other		
	No. of Cases	Factor	Product	No. of Cases	Factor	Product	No. of Cases	Factor	Product
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All	723	1.07	771	533	1.05	557	837	1.10	923
1944	172	1.10	189	98	1.06	104	161	1.17	188
1945	150	1.08	162	93	1.06	99	157	1.13	177
1946	140	1.06	148	116	1.05	122	182	1.10	200
1947	142	1.05	149	110	1.04	114	186	1.07	199
1948	119	1.03	123	116	1.02	118	151	1.05	159

The average values of Death and Permanent Total cases as calculated by the method just described, as well as the average values selected for classification and experience rating purposes, are shown in the following table:

TABLE E
AVERAGE VALUE OF DEATH AND PERMANENT TOTAL
BY INDUSTRY GROUPS

Industry Groups	No. of Death and P.T.	Total Death and P.T. (Revalued)	Average Value	Ave. with Comp. Multipliers (Table D)	Selected Average 7-1-51
(1)	(2)	(3)	(4)	(5)	(6)
(1) All	2,223	\$13,174,292	5,926	6,390	6,432
All ex. Stevedoring & Shipwright	2,174	12,481,229	5,741	6,183	6,194
(2) Manufacture and Utilities	723	4,367,894	6,041	6,464	6,446
(3) Metal Mfg., Boat Bldg. and Aircraft Mfg.	294	1,921,441	6,536	6,994	7,000
(4) Foods	122	744,767	6,105	6,532	6,500
(5) Textiles	57	277,344	4,866	5,207	5,200
(6) Other Manufacture	205	1,120,304	5,465	5,848	5,800
(7) Utilities	45	304,038	6,756	7,229	7,200
(8) Contracting and Quarrying	533	3,154,716	5,919	6,215	6,244
(9) Mining and Quarrying	100	577,877	5,779	6,068	6,000
(10) Excavation	126	711,282	5,645	5,927	6,300
(11) Building Construction	141	843,405	5,982	6,281	6,300
(12) Building Finishing	166	1,022,152	6,158	6,466	6,300
(13) Other Industries	967	5,651,682	5,845	6,430	6,526
(14) Other Industries ex. (18)	918	4,958,619	5,402	5,942	5,967
(15) Trucking and Storage	242	1,465,643	6,056	6,662	6,700
(16) Mercantile	96	518,543	5,401	5,941	6,000
(17) Office and Professional	89	447,030	5,023	5,525	5,500
(18) Stevedoring & Shipwright	49	693,063	14,144	15,558	17,000
(19) Municipal	225	1,224,410	5,442	5,986	6,000
(20) Amusements and Hotels	105	494,107	4,706	5,177	5,200
(21) Agriculture	116	577,374	4,977	5,475	5,500
(22) All Other	45	231,512	5,145	5,660	5,700

4. *Medical Cost.* Medical multipliers were determined by the following method: The average cost per case as reported for each of the six types of injury (Death, Permanent Total, Major Permanent, Minor Permanent, Temporary and Non-Compensable) was calculated for each of the five policy years and for each of the three industry divisions. Weighted averages for each policy year were then secured, using the ratio of the number of cases of each kind of medical cost to the total number of cases occurring in the five policy years, 1944-1948, as weights. An example, based on the data for Manufacture and Utilities will serve to illustrate the method employed. The average costs per case by type of injury were first determined and are shown in the following table:

TABLE F
AVERAGE MEDICAL COST AS REPORTED—MANUFACTURE AND UTILITIES
POLICY YEARS 1944—1948

<i>Type of Injury (1)</i>	<i>All</i>		<i>1944</i>		<i>1945</i>		<i>1946</i>		<i>1947</i>		<i>1948</i>	
	<i>No. of Cases (2)</i>	<i>Average (3)</i>	<i>No. of Cases (4)</i>	<i>Average (5)</i>	<i>No. of Cases (6)</i>	<i>Average (7)</i>	<i>No. of Cases (8)</i>	<i>Average (9)</i>	<i>No. of Cases (10)</i>	<i>Average (11)</i>	<i>No. of Cases (12)</i>	<i>Average (13)</i>
All	606,536	\$19.33	120,293	\$ 17.09	110,552	\$17.63	125,355	\$19.01	129,183	\$20.88	121,153	\$21.81
Death	424	372.60	84	362.82	81	327.95	86	412.72	92	418.20	81	333.01
Perm. Total	74	1,010.93	27	1,012.19	19	724.89	13	956.69	10	952.30	5	2,349.40
Major Perm.	2,114	531.72	417	407.88	389	425.24	421	526.31	432	701.05	455	580.50
Minor Perm.	3,991	122.42	794	100.82	820	107.40	813	123.05	821	130.08	743	152.96
Temporary	72,498	55.95	15,427	46.76	14,520	47.93	15,352	54.28	14,541	63.40	12,658	69.84
Non-Comp.	527,435	10.81	103,544	9.51	94,723	9.97	108,670	10.70	113,287	11.42	107,211	12.29

The weights to be applied to these average costs were then determined from the ratio of the number of cases for each type of injury in the five years to the total number of cases (606,536). The calculation follows:

TABLE G
RATIO OF NUMBER OF CASES OF EACH KIND OF MEDICAL COST
TO TOTAL
MANUFACTURE AND UTILITIES
POLICY YEARS 1944-1948

<i>Type of Injury</i>	<i>No. of Cases</i>	<i>Ratio to Total</i>
(1)	(2)	(3)
All	606,536	1.0000
Death	424	.0007
Permanent Total	74	.0001
Major Permanent	2,114	.0035
Minor Permanent	3,991	.0066
Temporary	72,498	.1195
Non-Compensable	527,435	.8696

The application of the weights shown in column (3) above to the average costs shown in Table F produced the following weighted average costs per case:

1944 —	\$16.31
1945 —	16.90
1946 —	18.83
1947 —	21.21
1948 —	22.54

Similar calculations were made for the other two industry divisions and the averages as determined for the three industry divisions were plotted on a graph and projected to the midpoint of the rate revision period (see Appendix, Graph II). Medical multipliers were calculated from these averages, keyed to the projected 1951-52 average. To test the reasonableness of these multipliers it was decided to attempt to secure some indication of the trend in medical costs since the end of the experience period. For this purpose the following tabulation was made of the average medical costs on Temporary accidents:

TABLE H
TEMPORARY MEDICAL—AVERAGE COST PER CASE

Policy Year	All		Manufacture		Contracting		Other	
	No. of Cases	Ave. Cost Per Case	No. of Cases	Ave. Cost Per Case	No. of Cases	Ave. Cost Per Case	No. of Cases	Ave. Cost Per Case
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1944	27,609	\$50.49	15,427	\$46.76	2,953	\$59.75	9,229	\$53.76
1945	28,961	52.56	14,520	47.93	3,978	59.46	10,463	56.36
1946	32,261	59.25	15,352	54.28	5,202	66.75	11,707	62.43
1947	31,581	67.96	14,541	63.40	5,696	74.02	11,344	70.77
1948	28,664	74.38	12,658	69.84	5,547	80.47	10,459	76.64
1949	27,505	77.69	12,671	75.01	4,847	80.98	9,987	79.49
Bef. 7-1-49	7,878	79.23	4,123	76.26	1,186	88.27	2,569	79.83
Aft. 7-1-49	19,627	77.07	8,548	74.41	3,661	78.62	7,418	79.38
1950	10,621	67.40	5,045	64.55	1,837	69.38	3,739	70.29

It was noted that a definite leveling-off of medical costs was indicated in 1949 and 1950. It was recognized, however, that for 1950 the cases reported were those of comparatively short duration, and it seemed certain that the fully developed costs would be somewhat higher than those shown above. Nevertheless, it was felt that the 1949 figures justified the conclusion that medical costs were not increasing as rapidly since 1948 as they were prior to that time. Accordingly, the averages of the above table were plotted for the years 1944 through 1949 and extended to an assumed 1951-52 average of \$80.00 for Manufacture, \$85.00 for Contracting and \$85.00 for Other Industries (see Appendix, Graph III). The ratios of these selected averages to the averages for 1948 were found to be 1.145 for Manufacture, 1.056 for Contracting and 1.109 for Other Industries. When rounded to 1.15, 1.05 and 1.10, respectively, and applied to the weighted averages for all types of medical cost for 1948, the following weighted averages for 1951-52 were produced:

Industry	Weighted Average	Selected Average
Manufacture	\$25.92	\$26.00
Contracting	33.84	34.00
Other	34.10	34.00

Medical multipliers were then calculated, keyed to the above selected averages for 1951-52. The multipliers, after rounding, were as follows:

TABLE J
MEDICAL MULTIPLIERS

<i>Policy Year (1)</i>	<i>Manufacture (2)</i>	<i>Contracting (3)</i>	<i>Other (4)</i>
1944	1.60	1.40	1.55
1945	1.55	1.35	1.45
1946	1.40	1.25	1.30
1947	1.25	1.10	1.20
1948	1.15	1.05	1.10
1949	1.10	1.04	1.07
1950	1.05	1.02	1.04
1951-52	1.00	1.00	1.00

These multipliers were applied to the medical cost of Minor, Temporary and Non-Compensable cases—83% of all medical. The medical cost for cases of Death, Permanent Total and Major Permanent disability was used as reported, without modification.

EXPENSE LOADING AND RATE FORMULAE

Prior to July 1, 1951, there was no provision in Pennsylvania rates for profit and contingencies. Following extensive consideration of the subject, the Classification and Rating Committee adopted, and the Insurance Commissioner approved, a loading of 2.5 per cent for profit and contingencies for inclusion in the expense provisions underlying the July 1, 1951 rates. The provision for losses was accordingly reduced from .615 to .590, and the following expense loading formula adopted:

<i>PREMIUM</i>		100.00
<i>POLICY FEE—\$8</i>		
Taxes (.025 × 3)	.08	
Acquisition (.175 × 3)	.53	
Home Office & Audit	2.39	3.00
<i>MANUAL RATES</i>		
Losses	59.0	57.23
Claims Expense	8.2	7.95
Inspection & Bureau	2.9	2.81
Taxes	2.5	2.43
Acquisition	17.5	16.98
Home Office & Audit	7.4	7.18
Profit & Contingencies	2.5	2.43
	100.0	

It will be noted that the policy fee, or expense constant, is included in the above formula as equivalent to three per cent of total premium. This percentage was developed from the Size of Risk studies for policy years 1946 and 1947. For these two years combined, the average premium (excluding minimum premiums) was found to be \$269. The \$8 policy fee was 2.97 per cent of this average and hence was used at three per cent in the formula. It should be noted that in Pennsylvania, the policy fee applies to all risks and not just to risks below a certain premium size, as is the case in most other states.

The rate formulae used for the July 1, 1951 rates were as follows:

(a) MANUFACTURING AND UTILITIES:

$$\frac{\text{Pure Premium} \times 1.12}{.590} + \$0.01 = 1.90 \text{ p.p.} + \$0.01$$

(b) CONTRACTING AND QUARRYING:

$$\frac{\text{Pure Premium} \times 1.12}{.590} + \$0.01 = 1.90 \text{ p.p.} + \$0.01$$

(c) OTHER INDUSTRIES:

$$\frac{\text{Pure Premium} \times 1.09}{.590} + \$0.01 = 1.85 \text{ p.p.} + \$0.01$$

In the above formulae .590 is the expected loss ratio, \$.01 is the loading for catastrophes, and the factors 1.12 and 1.09 are the Large Risk Factors. The Large Risk Factor is a combined off-balance factor and loss constant and is designed to equalize the loss ratios of risks of over and under \$500 annual premium. The effect of the Large Risk Factor gradually decreases as the size of the risk increases. For Manual rated risks, the full effect of the factor is obtained. For experience rated risks, the effect of the factor diminishes as the credibility increases; that is, a risk with 50 per cent credibility receives a 50 per cent weighting of the factor, while in a self-rated risk the effect of the Large Risk Factor disappears entirely.

For a number of years a single factor of 1.12 was used for all industries and produced an almost exact balance in loss ratios. For example, for policy year 1947 the loss ratio for risks with annual premiums of less than \$500 (exclusive of minimum premium risks) was 49.6 per cent, whereas the loss ratio for risks with annual premiums of \$500 or more (exclusive of self-rated risks) was 49.4 per cent.

In spite of the fact that the Large Risk Factor appeared to be producing the desired results on an all-industry basis, it seemed advisable to determine whether or not the loss ratios were being equalized for each of the three industry divisions. Accordingly, the Size of Risk experience for policy years 1946 and 1947 was reviewed, and appreciable differences were noted when the results for the three industry divisions were compared. For the two years combined, the loss ratios were found to be as follows:

<i>Size Groups (Annual Premium)</i>	<i>Loss Ratio Based on Standard Premium (including Policy Fee)</i>
<i>All Industries</i>	
Under \$500 (ex. Minimum Premium)	49.0
\$500 and over (ex. Self-Rated)	48.9
<i>Manufacture and Utilities</i>	
Under \$500 (ex. Minimum Premium)	56.5
\$500 and over (ex. Self-Rated)	53.5
<i>Contracting and Quarrying</i>	
Under \$500 (ex. Minimum Premium)	47.8
\$500 and over (ex. Self-Rated)	42.5
<i>Other Industries</i>	
Under \$500 (ex. Minimum Premium)	46.2
\$500 and over (ex. Self-Rated)	48.1

In view of the differences in loss ratios for the three industry groups, it was decided that a calculation should be made to determine the effect of the Large Risk Factor as well as the Policy Fee, using the Size of Risk studies for policy years 1946 and 1947 for that purpose. The average premium (excluding Policy Fee) for each of fourteen size groups was determined and the experience rating credibility corresponding to each such premium was calculated. The amount of premium resulting from the Large Risk Factor was then developed from the formula:

$$L = P \left(1 - \frac{1}{F} \right) \left(1 - \frac{C}{100} \right)$$

Where L = Amount of premium from Large Risk Factor
P = Standard Premium ex. Policy Fee
F = Large Risk Factor = 1.12
C = Credibility

Loss ratios were then calculated, based on:

- (1) Standard Premium, including Policy Fee.
- (2) Standard Premium, excluding Policy Fee.
- (3) Premium ex. Large Risk Factor.
- (4) Premium ex. Large Risk Factor and ex. Policy Fee.

The results were summarized and are shown in Exhibit I of the Appendix. The ratios of the loss ratios of the smaller risks to those of the larger risks were then calculated for each of the four premium bases, as shown in the following table:

TABLE K
 RATIO OF LOSS RATIOS OF RISKS WITH PREMIUM UNDER \$500
 (EX. MINIMUM PREMIUM) TO THOSE OF RISKS WITH
 PREMIUM OVER \$500 (EX. SELF-RATED)

POLICY YEARS 1946 AND 1947

<i>Industry Division</i> (1)	<i>Standard Premium</i> (2)	<i>Premium Ex. Policy Fee</i> (3)	<i>Premium Ex. Large Risk Factor</i> (4)	<i>Premium Ex. L. R. F. & Policy Fee</i> (5)
All	1.001	1.103	1.036	1.155
Manufacture & Utilities	1.073	1.146	1.118	1.203
Contracting & Quarrying	1.125	1.192	1.171	1.248
Other Industries	.962	1.094	.985	1.136

After reviewing these calculations, it was felt that, while there was some indication of the need for a larger factor for Contracting, it would be unwise to increase the factor at the present time, in view of the favorable loss ratios in this industry division. Accordingly, it was decided to continue the 1.12 Large Risk Factor for the Manufacturing and Contracting divisions, but to reduce the factor to 1.09 for the Other Industries division.

MINIMUM PREMIUM FORMULA

Prior to July 1, 1950, the minimum premium formula was: $1.333 \times \text{Losses Per Risk} + \text{Policy Fee}$. This formula was originally adopted in 1940 and was based on an expected loss ratio of 50 per cent, with the policy fee taken at $33\frac{1}{3}$ per cent. The latter percentage was based on the average minimum premium of \$24 for all industries, as shown in the latest Size of Risk study available at that time. The formula was developed as follows:

Losses	.500	
Policy Fee	.333	
Expenses	.167	
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	1.000	
<hr style="width: 100%; margin: 0 auto;"/> Expenses (ex. Policy Fee)	.167	
	<hr style="width: 50px; margin: 0 auto;"/>	
Losses	.500	= .333

Minimum Premium Loss Multiplier = 1.333

This formula was revised in the spring of 1950 for use in the July 1, 1950 rate revision and was repeated in the 1951 rate revision. An analysis of the Size of Risk Experience for 1947 policy year indicated that the average minimum premium for all industries had decreased from \$24.00 to \$19.05, with the following averages for the three industry divisions:

Manufacture and Utilities	\$17.75
Contracting and Quarrying	29.16
Other Industries	16.74

The indicated loss multipliers, based on the above averages and an expected loss ratio of 50 per cent, were calculated as follows:

<i>Industry</i>	<i>Per Cent Policy Fee to Average Premium</i>	<i>Balance for Expenses [1.000-.500-(2)]</i>	<i>Ratio (3) ÷ .500</i>	<i>Indicated Loss Multiplier</i>
(1)	(2)	(3)	(4)	(5)
Manufacture & Utilities	.451	.049	.098	1.098
Contracting & Quarrying	.274	.226	.452	1.452
Other Industries	.478	.022	.044	1.044

The indicated loss multipliers were rounded to 1.10, 1.40 and 1.05, respectively, and the following minimum premium formulae were adopted:

Manufacture:	1.10 Losses Per Risk + \$8.00 : Maximum payroll \$1,200
Contracting:	1.40 Losses Per Risk + \$8.00 : Maximum payroll \$1,200
Other Industries:	1.05 Losses Per Risk + \$8.00 : Maximum payroll \$1,200

The \$1,200 payroll limitation is included in the formula so as to prevent minimum premiums in the lower rated classes from increasing, as the average payroll per risk increases. For classifications in which the average payroll exceeds \$1,200, the ratio of \$1,200 to such average payroll is calculated and applied as a reducing factor to the loss cost per risk.

CHARACTERISTICS OF CLASSIFICATION EXPERIENCE

Following the selection of payroll and loss multipliers, as well as the rate and minimum premium formulae, pure premiums and indicated rates are calculated for each Manual classification. However, before describing this part of the rate-making process, it seems advisable to explain briefly one rather unique step in the procedure.

In the past, a number of different methods had been used to attempt to stabilize rate levels for classifications having a comparatively small volume of experience. None of these methods had produced completely satisfactory results, so that about five years ago studies were undertaken looking toward a more dependable method. These studies culminated in the procedure which was first used in the 1947 rate revision. To attempt to give a complete exposition of this study would extend the scope of this paper beyond reasonable limits; a brief description of the methods used and the conclusions reached should be sufficient to explain how the procedure operates.

The study involved a review of the occurrence of accidents of various types for classifications having an average of 100 or more Temporary accidents per annum, and covered the fourteen policy years, 1930 to 1943, inclusive. (In subsequent rate revisions a full fifteen year period was used.) This period included periods of industrial activity and major depression, as well as the early part of World War II. There were considerable changes in wage rates and both upward and downward changes in benefit levels because of legislative

amendments. It was felt that relationships which were reasonably constant during this period could be accepted as characteristic of classification experience. Because of the variation in employment and the fluctuation in wage rates, it was felt that payrolls could not be used as a dependable index of exposure. Following a series of tests, the conclusion was reached that the number of Temporary accidents was the most dependable index which could be found. Accordingly, a tabulation was made of the five-year moving averages of the number of Death and Permanent Total, Major Permanent and Minor Permanent cases per 1,000 Temporary cases. A table of credibilities was developed from this material, based on the average number of Temporary cases per year, as shown in Exhibit II in the Appendix.

In the development of Manual rates, classifications having 150 or more Temporary accidents in the five-year experience period are assigned the credibility from the table corresponding to the average number of Temporary accidents per annum in the five years. (Rates for classifications with less than 150 Temporaries are based on the five-year experience, without further modification.) The complement of this credibility is assigned to the 15-year experience. The respective credibilities are then applied to the number of Death and Permanent Total, Major Permanent and Minor Permanent cases related to the number of Temporary cases in the five-year experience period, and a weighted average number for each type of serious case is calculated. These weighted averages are then compared with the number of serious cases in the experience period, and the losses adjusted accordingly. An example based on Classification 225, Rubber Goods and Tire Manufacturing, will serve to illustrate the method used:

In the five-year experience period there were 7 Deaths, no Permanent Totals, 20 Major Permanents, 54 Minor Permanents and 680 Temporaries. The average number of Temporaries per year (136) gives the five-year experience a credibility of .677, with a corresponding credibility of .323 assignable to the 15-year experience. The number of Deaths and Permanent Totals, Major Permanents and Minor Permanents occurring in the 15 years, related to the 680 Temporaries, was 5, 17 and 47, respectively. Weighted averages were then calculated, as follows:

	<i>Death & P.T.</i>	<i>Major Permanent</i>	<i>Minor Permanent</i>
(1) Number of cases—5 years	7	20	54
(2) Credibility—5 years	.677	.677	.677
(3) (1) × (2)	4.74	13.54	36.56
(4) Number of cases—15 years (Per 680 Temporaries)	5	17	47
(5) Credibility—15 years	.323	.323	.323
(6) (4) × (5)	1.62	5.49	15.18
(7) (3) + (6)	6.36	19.03	51.74
(8) Number of cases—5 years	7	20	54
(9) (7) - (8)	-1	-1	-2

It will be seen from the above calculation that it was necessary to adjust the losses of the five-year period by subtracting from them the value of one Death and Permanent Total, one Major Permanent and two Minor Permanents. The average values for each of these types of injury in this classification

were \$5,800, \$3,532 and \$1,154 respectively. A total of \$11,640 was therefore subtracted from the five-year losses of \$350,254, producing adjusted losses of \$338,614. The pure premium corresponding to the adjusted losses was \$.480 and the resulting rate indication \$.947 (including \$.025 for Silicosis). The pure premium corresponding to the unadjusted five-year losses was \$.497 and the resulting rate indication \$.979—a difference of \$.032 in final rate.

For the larger classes with high credibility, the procedure makes very little difference in the final rate result. For example, Classification 811, Truckmen, with 6,643 Temporary accidents in the five-year period, had a credibility of .875 for the five-year experience. The rate indication based on the losses of the five years alone was \$1.277, as against \$1.281 for the combined experience.

Before leaving this subject, it might be of interest to the members of the Society to set forth some of the conclusions reached in the course of this study.

They are as follows:

1. The stability and accuracy of classification rates can be enhanced—so far as losses enter into the rate calculation—by using the experience of the most recent five years with the appropriate credibility against the experience of the fifteen years multiplied by one minus the credibility.
2. No Pennsylvania industry class is big enough to be rated on less than five years of experience when five years are available. Tests made of the credibility of experience for the six largest Pennsylvania classifications indicated a marked decrease in credibility when three years or two years of experience were used.
3. Recent experience, if it indicates a departure from the averages of a previous period, so far as losses are concerned, may be misleading, entirely aside from the fact that some losses are undetermined in character for two, three, or more years after the accident.
4. Trends in accident rate and consequently in pure premium in as short a period as five years should not be followed implicitly or projected, because of the cyclic nature of accident rates.

CALCULATION OF CLASSIFICATION RATES

The experience for each classification is tabulated on a reported basis, by policy year and by type of injury. As indicated earlier, the experience used for the making of Manual rates excludes that of the larger risks (those with an experience rating credibility of 75 per cent or more), as well as that for minimum premium risks. It excludes, as well, cases of dust disease and lead poisoning, the pure premiums for which are calculated separately and added to the traumatic pure premiums before calculation of the final Manual rate. Other occupational disease losses are included in the body of the experience, so that no general loading for occupational disease is necessary.

Rate sheets are prepared for each classification, showing the experience of the five years, both as reported and as translated by application of the various payroll and loss modifiers. The pure premium based on the five-year experience alone, as well as the adjusted pure premium after weighting for the 15-year experience, together with the corresponding rate indications, are shown at the bottom of each sheet. Indicated rates for dust disease or lead poisoning are set out separately for the classifications having such losses. Information pertinent to the calculation of the Minimum Premium is also shown.

The rate sheet for Classification 461, Machine Shops, has been reproduced as Exhibit III in the Appendix to illustrate the manner in which the classification experience is prepared for the Classification and Rating Committee. The detail of the translation of the experience for this classification is shown as Exhibit IV.

When the rate sheets for all classifications have been completed, they are distributed to the Classification and Rating Committee, usually about a week in advance of the rate selection meeting. The rate indications for each classification are reviewed, and the indicated rates are generally adopted, subject to the provision that no rate shall be increased or decreased by more than 25 per cent. Rates of fifty cents or less are rounded to the nearest cent, while those in excess of fifty cents are rounded to the nearest nickel.

After adoption of rates for each classification, a "Test of Selected Rates" is prepared and submitted to the Committee for review. This Test shows a comparison of the rates of the current Manual with those just adopted. The percentage change is shown for each classification and is summarized by industry group and industry division. The average over-all change indicated by the 1951 Test of Rates was a reduction of 4.4 per cent, with the following average changes by industry division:

Manufacture and Utilities	—2.5 per cent
Contracting and Quarrying	—6.8 per cent
All Other Industries	—5.2 per cent

The summary sheet of the 1951 Test is shown in the Appendix as Exhibit V.

Following adoption of the rates of the Test, filing is made with the Insurance Commissioner. Unless some very unusual circumstance is involved, the Commissioner ordinarily approves the rates as proposed to him. One reason for our ability to secure prompt approval of rate filings is that, in accordance with the Constitution of the Bureau, the Insurance Commissioner or his representative acts as chairman of all committees of the Bureau. He is therefore fully informed on all matters presented to him, and is in a position to act promptly on all Bureau proposals.

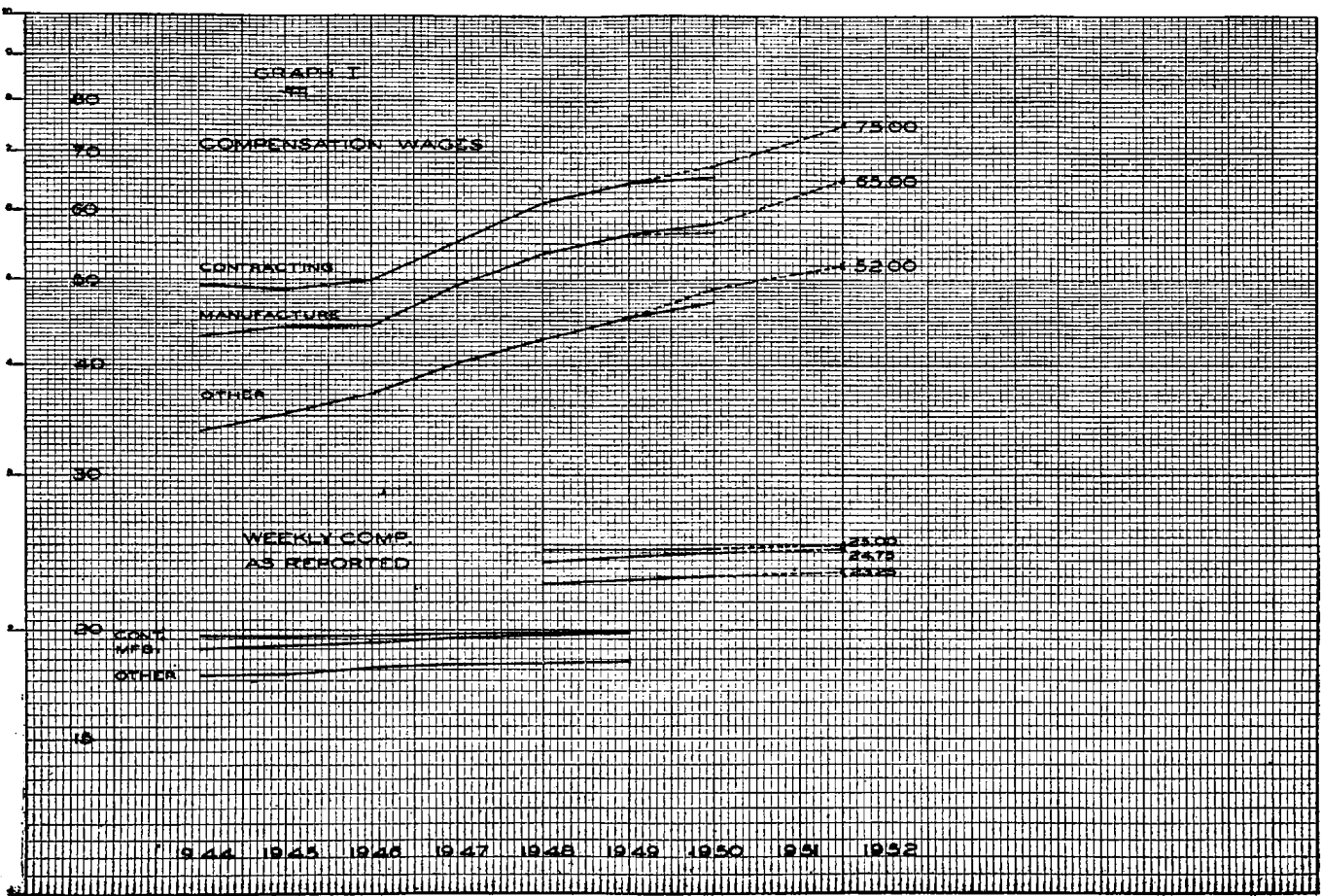
In conclusion, it might be well to mention one improvement which will be made in the rate-making procedure in connection with the 1952 rate revision. As previously mentioned, the experience used for the July 1, 1951 rate revision was that of policy years 1944–1948, inclusive. The last policy of 1948 policy year expired in December of 1949—eighteen months prior to the effective date of the 1951 rates. In order to reduce this lag in experience, the Bureau staff proposed to the Actuarial Committee that for the July 1, 1952 rate revision, the experience be compiled on a "Manual Year" basis. That is, the experience period is to be the five "Manual Years" beginning with policies of July 1, 1945, instead of the five policy years beginning with policies of January 1, 1945. This will reduce the lag in experience by six months and will mean that the latest policy of the experience period will expire exactly twelve months prior to the effective date of the 1952 rates. It is felt that this change will effect a considerable improvement in the rate-making structure.

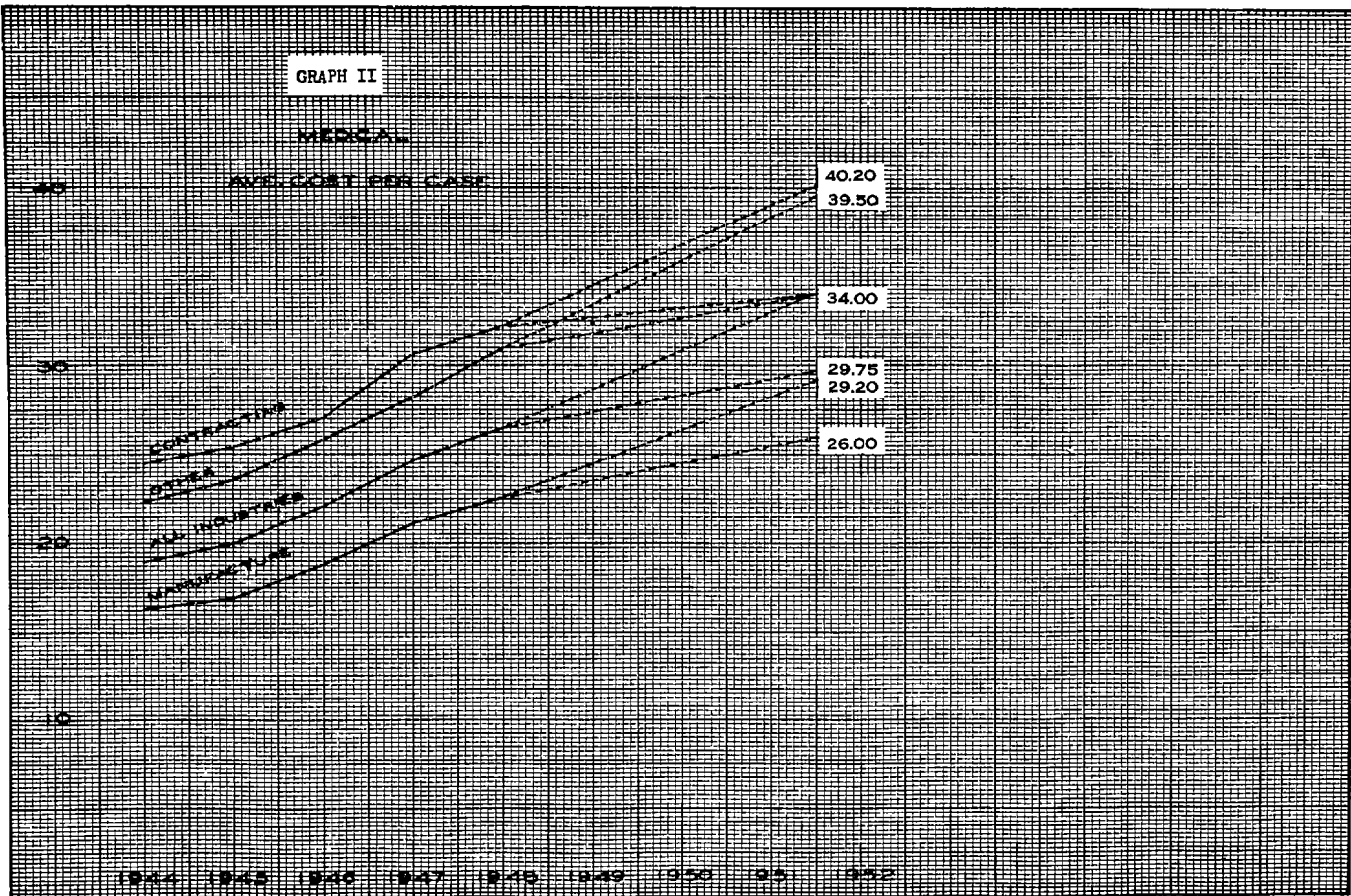
Several statistical tables are shown in the Appendix as a matter of interest. Your attention is called particularly to Exhibit VI, which shows the rate changes that have occurred in Pennsylvania since July 1, 1939. It will be noted

that in spite of benefit increases in 1945 and 1949, the July 1, 1951 rates were, on the average, 53.3 per cent lower than those in effect in 1939.

APPENDIX

- Graph I : Compensation Wages; Weekly Compensation as Reported
- Graph II : Medical Average Cost Per Case
- Graph III : Temporary Medical—Average Cost Per Case
- Exhibit I : Calculation Showing Effect of Large Risk Factor and Policy Fee
- Exhibit II : Credibility of Five Years of Classification Experience
- Exhibit III : Classification Rate Sheet—Code 461, Machine Shops
- Exhibit IV : Translation of Experience and Rate Calculation—Classification 461, Machine Shops
- Exhibit V : Test of 1951 Selected Rates
- Exhibit VI : Pennsylvania Rate Changes, 1939-1951
- Exhibit VII : Total Experience—All Industries—Policy Years 1944-1948
- Exhibit VIII : Experience Ex. Large and Ex. Minimum Premium Risks—All Industries—Policy Years 1944-1948
- Exhibit IX : Payrolls and Losses—Ex. Large and Ex. Minimum Premium Risks—All Industries—Policy Years 1944-1948
- Exhibit X : Premiums, Losses and Loss Ratios Reported on Schedule Z, 1916-1948





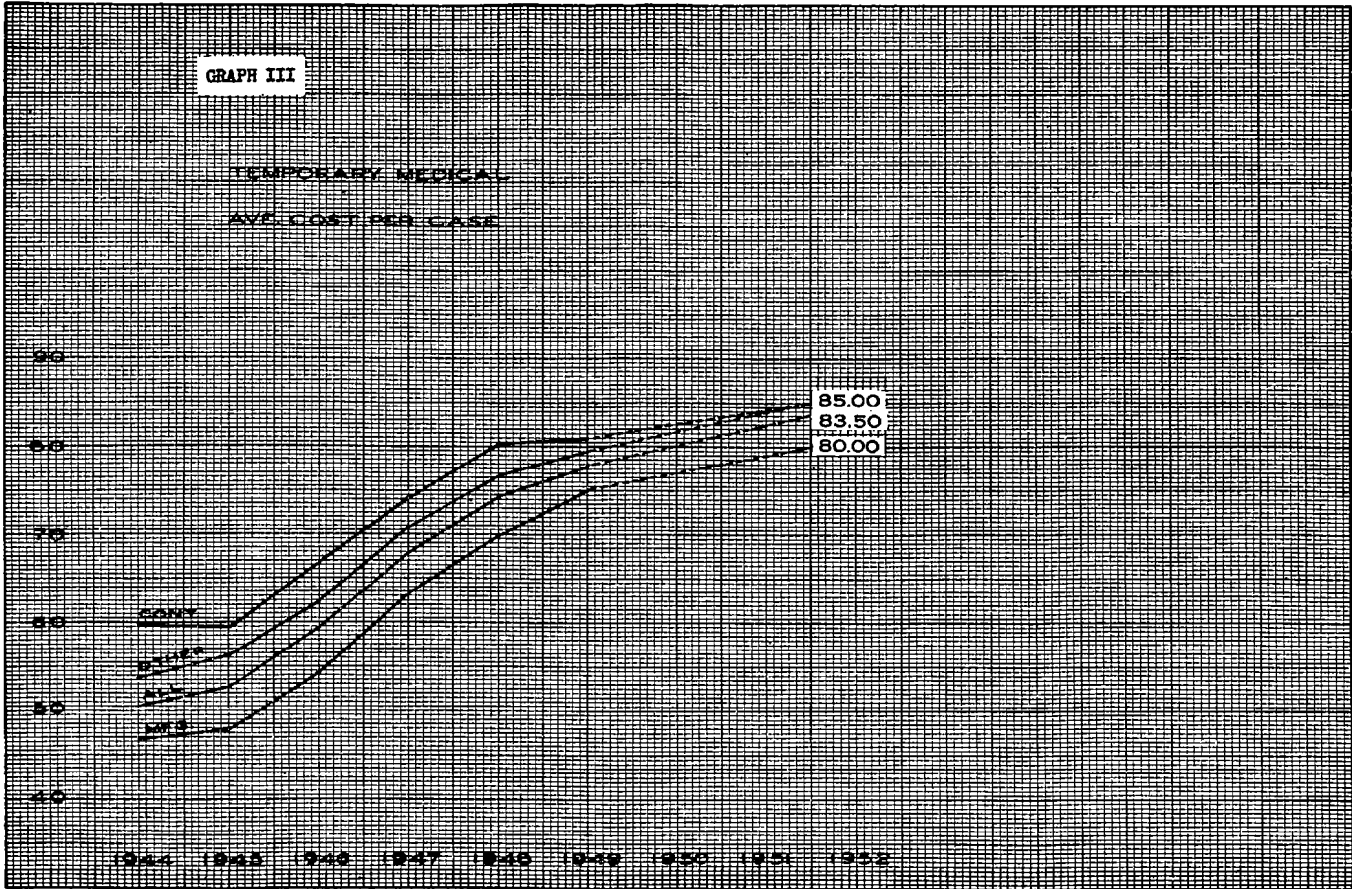


EXHIBIT I
CALCULATION SHOWING EFFECT OF LARGE RISK FACTOR AND POLICY FEE
POLICY YEARS 1946 AND 1947

Size Groups Annual Premium (1)	Standard Premium (2)	Premium Ex. Policy Fee (3)	Correction for Large Risk Factor (1.12) (4)	Premium Ex.L.R.F. (2)-(4) (5)	Premium Ex.L.R.F. & Policy Fee (3)-(4) (6)	Ratio (5)+(6) (7)	Incurred Losses (8)	Col. (9)	Loss Ratio Based on		
									Col. (3)	Col. (5)	Col. (6)
ALL INDUSTRIES											
All	\$64,317,074	\$61,882,514	\$4,109,324	\$60,207,750	\$57,773,190	1.071	\$32,340,923	50.28	52.26	53.72	55.98
Under 500 (Ex.M.P.)	17,742,307	16,025,395	1,687,318	16,054,989	14,338,077	1.118	8,689,562	48.98	54.22	54.12	60.60
500 & over (Ex.S.R.)	38,304,366	38,149,966	2,422,006	35,882,360	35,727,960	1.068	18,748,895	48.95	49.15	52.25	52.48
Minimum premium	1,860,541	799,037	—	1,360,541	799,037	1.000	483,895	35.57	60.56	35.57	60.56
Self-rated	6,909,860	6,908,116	—	6,909,860	6,908,116	1.000	4,418,571	63.95	63.96	68.96	63.96
MANUFACTURE											
All	\$27,771,593	\$27,390,953	\$1,516,073	\$26,255,520	\$25,874,880	1.059	\$15,805,399	55.11	55.88	58.29	59.15
Under 500 (Ex.M.P.)	4,120,214	3,844,270	402,474	3,717,740	3,441,796	1.117	2,328,015	56.50	60.56	62.62	67.64
500 & over (Ex.S.R.)	18,748,475	18,684,467	1,118,599	17,634,376	17,570,868	1.063	9,376,844	52.68	52.86	56.01	56.21
Minimum premium	89,820	50,436	—	89,820	50,436	1.000	37,094	41.30	73.55	41.30	73.55
Self-rated	4,813,084	4,811,780	—	4,813,084	4,811,780	1.000	3,063,446	63.65	63.67	63.65	63.67
CONTRACTING											
All	\$14,053,067	\$13,678,083	\$ 985,932	\$13,067,185	\$12,692,151	1.078	\$ 6,242,478	44.42	45.64	47.77	49.18
Under 500 (Ex.M.P.)	4,007,599	3,770,567	396,045	3,611,554	3,374,522	1.117	1,916,118	47.31	50.82	53.06	56.78
500 & over (Ex.S.R.)	9,422,046	9,383,270	589,887	8,892,159	8,793,333	1.067	4,002,152	42.48	42.65	45.31	45.51
Minimum premium	367,365	268,349	—	367,365	268,349	1.000	159,533	43.43	59.45	43.43	59.45
Self-rated	266,057	255,897	—	266,057	255,897	1.000	164,675	64.31	64.35	64.31	64.35
OTHER INDUSTRIES											
All	\$22,492,414	\$20,813,478	\$1,607,319	\$20,885,095	\$19,206,159	1.084	\$10,793,046	47.99	51.86	51.68	56.20
Under 500 (Ex.M.P.)	9,614,494	8,410,558	888,799	8,725,695	7,521,759	1.118	4,445,429	46.24	52.86	50.95	59.10
500 & over (Ex.S.R.)	10,138,845	10,082,229	718,520	9,415,325	9,363,709	1.077	4,869,899	48.06	48.30	51.72	52.01
Minimum premium	903,356	480,252	—	903,356	480,252	1.000	287,268	31.80	59.82	31.80	59.82
Self-rated	1,840,719	1,840,439	—	1,840,719	1,840,439	1.000	1,190,450	64.67	64.68	64.67	64.68

EXHIBIT II
CREDIBILITY OF FIVE YEARS OF CLASSIFICATION
EXPERIENCE

<i>Ave. No. of Temp. Cases Per Annum</i>	<i>Credi- bility</i>	<i>Ave. No. of Temp. Cases Per Annum</i>	<i>Credi- bility</i>	<i>Ave. No. of Temp. Cases Per Annum</i>	<i>Credi- bility</i>
<i>(1)</i>	<i>(2)</i>	<i>(1)</i>	<i>(2)</i>	<i>(1)</i>	<i>(2)</i>
30	.302	210	.762	390	.833
40	.379	220	.770	400	.835
50	.445	230	.777	450	.841
60	.499	240	.784	500	.846
70	.542	250	.790	550	.850
80	.573	260	.795	600	.853
90	.596	270	.800	650	.855
100	.615	280	.804	700	.857
110	.633	290	.807	750	.859
120	.650	300	.811	800	.861
130	.667	310	.814	850	.863
140	.683	320	.817	900	.864
150	.698	330	.820	950	.864
160	.711	340	.822	1,000	.865
170	.723	350	.825	2,000	.896
180	.734	360	.827	3,000	.927
190	.744	370	.829	4,000	.958
200	.753	380	.831	5,000	.986

EXHIBIT III

EXPERIENCE EXCLUDING LARGE RISKS AND MINIMUM PREMIUMS

CLASSIFICATION Machine Shops

CODE NO. 461

	POLICY YEAR	PAYROLL (IN THOUSANDS)	ALL LOSSES	DEATH		PERM. TOTAL		MAJOR PERM.		MINOR PERM.		TEMP. COMP.		MEDICAL AMOUNT	PURE PREM.
				No.	AMOUNT	No.	AMOUNT	No.	AMOUNT	No.	AMOUNT	No.	AMOUNT		
AS REPORTED	1944	118 553	504 265	7	31 859	4	34 833	38	83 951	84	44 972	1532	85 819	222 831	.43
	1945	91 156	366 475	3	15 074	-	-	21	43 189	84	49 508	1132	75 515	183 189	.40
	1946	87 838	361 810	3	15 012	-	-	22	60 983	74	44 458	992	60 579	180 778	.41
	1947	101 112	409 468	3	12 013	3	32 519	26	57 398	65	46 886	962	60 014	200 638	.40
	1948	103 490	404 139	8	33 953	-	-	25	65 274	74	45 538	802	53 152	206 222	.39
	TOTAL	502 149	2 046 157	24	107 911	7	67 352	132	310 795	381	231 362	5420	335 079	993 658	.41
TRANSLATED	1944	179 015	733 176	11	77 000			38	114 863	84	63 631	1532	121 152	356 530	.41
	1945	133 999	525 553	3	21 000			21	55 187	84	65 211	1132	100 212	283 943	.39
	1946	128 243	484 259	3	21 000			22	75 397	74	57 232	992	77 541	253 089	.38
	1947	133 468	497 756	6	42 000			26	68 764	65	59 976	962	76 218	250 798	.37
	1948	125 223	494 080	8	56 000			25	77 544	74	56 857	802	66 524	237 155	.39
	TOTAL	699 948	2 734 824	31	217 000			132	391 755	381	302 907	5420	441 647	1 381 515	.39
PURE PREMIUM			.391	.031	-	.056	.043	.063	.197						
MIN. PREM. TRANSLATED COST PER RISK			980-81042	5.43	-	-	1.29	1.23	2.91						

15 Yr. Ave. per 5420 Temp. 34 - 152 - 382 Credibility .132 Combined 31 - 135 - 381 p.p. .392 Rate .755 Ind. .753

MULTIPLE ACCIDENTS

44 - 1 - 2 Ma. D. & P.T. -
 Ma. + 3 8 904
 Mi. -
 Total 2 743 728

YEAR	1947	1948	1949	1950	1951	MINIMUM PREM.
IND. RATES	.85	.80	.85	.75	.75	14
MANUAL RATES	.80	.80	.85	.75		15

EXHIBIT IV
 TRANSLATION OF EXPERIENCE AND RATE CALCULATION
 CLASSIFICATION 461, MACHINE SHOPS

A. MODIFIERS USED FOR TRANSLATION OF EXPERIENCE

<i>Policy Year</i> (1)	<i>Payroll</i> (2)	<i>Medical— Minor, Temp. Non-Comp.</i> (3)	<i>Policy Year</i> (4)	<i>Revalued Major & Minor Compensation</i> (5)	<i>Temporary Compensation</i> (6)
1944	1.51	1.60	1944—Bef. 7-1-45	1.11	1.42
1945	1.47	1.55	1944—Aft. 7-1-45	1.11	1.30
1946	1.46	1.40	1945—Bef. 7-1-45	1.08	1.41
1947	1.32	1.25	1945—Aft. 7-1-45	1.09	1.29
1948	1.21	1.15	1946	1.07	1.28
			1947	1.05	1.27
			1948—Bef. 7-1-49	1.03	1.26
			1948—Aft. 7-1-49	1.03	1.03

Average Value Death and P. T. \$7,000.

Major Medical—as Reported.

Rate Formula: 1.90 p.p. + .01.

Minimum Premium Formula: $1.10 \times \text{Losses per Risk} + \8 ; Maximum Payroll \$1,200.

EXHIBIT IV (cont'd)
 EXPERIENCE EXCLUDING LARGE RISKS AND MINIMUM PREMIUM RISKS
 CLASSIFICATION 461, MACHINE SHOPS
 B. EXPERIENCE AS REPORTED

Policy Year (1)	Payroll (In (Thousands) (2)	All Losses (3)	Death		Perm. Total		Major Permanent		Minor Permanent		Temporary		Medical— Minor, Temp. Non-Comp. (15)	Pure Prem. (16)	
			No. (4)	Amount (5)	No. (6)	Amount (7)	No. (8)	Comp. (9)	Med. (10)	No. (11)	Comp. (12)	No. (13)			Comp. (14)
1944	\$118,553	\$ 504,265	7	\$31,859	4	\$34,833	38	\$71,245	\$12,706	84	\$44,972	1,632	\$85,819	\$222,831	\$.43
1945	91,156	366,475	3	15,074	—	—	21	35,828	7,361	84	49,508	1,132	75,515	183,189	.40
1946	87,838	361,810	3	15,012	—	—	22	51,699	9,284	74	44,458	992	60,579	180,778	.41
1947	101,112	409,468	3	12,013	3	32,519	26	44,891	12,507	65	46,886	962	60,014	200,698	.40
1948	103,490	404,139	8	33,953	—	—	25	52,109	13,165	74	45,538	802	53,152	206,222	.39
Total	\$502,149	\$2,046,157	24	\$107,911	7	\$67,352	132	255,772	55,023	381	231,362	5,420	335,079	993,658	.41
1944—Before 7-1-45							34	67,589	12,163	74	39,668	1,437	79,890		
1944—After 7-1-45							4	3,656	543	10	5,304	95	5,929		
1945—Before 7-1-45							6	13,397	3,318	23	10,578	404	23,313		
1945—After 7-1-45							15	22,431	4,043	61	38,930	723	52,202		
1948—Before 7-1-49							22	47,365	10,314	70	42,089	776	51,208		
1948—After 7-1-49							3	4,744	2,851	4	3,449	26	1,944		
REVALUED MAJOR AND MINOR COMPENSATION															
1944—Before 7-1-45							34	87,831	—	74	51,470				
1944—After 7-1-45							4	4,202	—	10	5,855				
1945—Before 7-1-45							6	17,647	—	23	14,014				
1945—After 7-1-45							15	26,392	—	61	45,941				
1946							22	61,788	—	74	53,488				
1947							26	53,578	—	65	57,120				
1948—Before 7-1-49							22	57,760	—	70	51,752				
1948—After 7-1-49							3	4,744	—	4	3,449				

EXHIBIT IV (cont'd)

EXPERIENCE EXCLUDING LARGE RISKS AND MINIMUM PREMIUM RISKS
CLASSIFICATION 461, MACHINE SHOPS

C. EXPERIENCE AS TRANSLATED

Policy Year (1)	Payroll (In Thousands)		Death and Perm. Total		Major Perm.		Minor Perm.		Temporary		Medical— Minor, Temp., Non-Comp.		Pure Premium (13)
	(2)	Losses (3)	No. (4)	Amount (5)	No. (6)	Amount (7)	No. (8)	Comp. (9)	No. (10)	Comp. (11)	(12)		
1944	\$179,015	\$733,176	11	\$77,000	38	\$114,863	84	\$63,631	1,532	\$121,152	\$356,530	\$.41	
1945	133,999	525,553	3	21,000	21	55,187	84	65,211	1,132	100,212	283,943	.39	
1946	128,243	484,259	3	21,000	22	75,397	74	57,232	992	77,541	253,089	.38	
1947	133,468	497,756	6	42,000	26	68,764	65	59,976	962	76,218	250,798	.37	
1948	125,223	494,080	8	56,000	25	77,544	74	56,857	802	66,524	237,155	.39	
Total	699,948	2,734,824	31	217,000	132	391,755	381	302,907	5,420	441,647	1,381,515	.39	
Pure Premium		.391		.031		.056		.043		.063	.197		

15 Yr. Ave. per 5,420 Temporaries

Death and P. T.	34
Major Perm.	152
Minor Perm.	382
Credibility	.132

5 Year Experience

Death and P. T.	31
Major Perm.	132
Minor Perm.	381
Credibility	.868

Weighted Averages

Death and P. T.	31
Major Perm.	135
Minor Perm.	381

Translated Losses—5 Years \$2,734,824

Add: 3 Major Perm. 8,904

Adjusted Losses 2,743,728

Five Years Pure Premium = \$.391

Adjusted Pure Premium = .392

Rate = 1.90 x .391 + .01 = \$.753

Rate = 1.90 x .392 + .01 = .755

Minimum Premium Calculation

(1) Average Payroll Per Risk	\$1,042.00
(2) Average Loss Cost Per Risk	5.43
(3) 1.10 x (2) + \$8 =	13.97
(4) Indicated Minimum Premium	14.00

EXHIBIT V
TEST OF 1951 SELECTED RATES

Industry Classifications (1)	Modified Payrolls Schedule Z 1944, 1945, 1946, 1947 and 1948 Ex. Large & M.P. Risks (000 omitted)			Ratio Premiums at 1951 Selected Rates to Premiums at 1950 Rates (4) ÷ (3)	
	(2)	1950 Manual Rates (3)	1951 Selected Rates (4)	(5)	(5)
All Classes	\$24,287,318	\$142,885,355	\$136,640,115	95.6	
Manufacture and Utilities	9,934,070	63,761,355	62,146,034	97.5	
Manufacture	9,822,627	62,499,633	60,858,143	97.4	
Food Industries and Tobacco Mfg.	1,303,640	10,194,244	10,023,905	98.3	
Textiles and Clothing Mfg.	2,778,548	6,263,940	6,153,515	98.2	
Leather, Rubber and Composition Goods and Paper Manufacturing and Printing	1,369,810	7,026,289	6,932,953	98.7	
Woodworking	433,461	5,081,051	4,906,472	96.6	
Iron and Steel Making and Steel Fabricating	493,636	6,819,260	6,498,742	95.3	
Foundries	338,123	3,594,293	3,667,533	102.0	
Metal Working	1,025,013	8,515,326	8,057,007	94.6	
Machinery Manufacturing	1,308,498	7,790,613	7,627,647	97.9	
Stone and Clay Products and Glass Mfg.	476,652	4,590,869	4,442,867	96.8	
Chemicals Industries	295,246	2,623,748	2,547,502	97.1	
Utilities Operation	111,443	1,261,722	1,287,891	102.1	
Contracting and Quarrying	2,051,784	30,234,052	28,163,420	93.2	
Contracting	1,893,858	26,898,392	25,022,953	93.0	
Mining and Quarrying	157,926	3,335,660	3,140,467	94.1	
Excavation and Construction	319,355	6,287,273	5,916,135	94.1	
Building Construction	713,215	10,054,352	9,396,843	93.5	
Building Finishing	861,288	10,556,767	9,709,975	92.0	
All Other Industries	12,301,464	48,889,948	46,330,661	94.8	
Agriculture and Logging	74,378	3,723,970	3,567,330	95.8	
Trucking, Storage and Material Dealers	1,549,405	17,232,447	15,985,474	92.8	
Stores	3,124,303	9,389,028	8,966,972	95.5	
Clerical and Professional Employments	5,584,570	6,410,981	6,019,873	93.9	
All Other	1,968,808	12,133,522	11,791,012	97.2	

EXHIBIT VI
PENNSYLVANIA RATE CHANGES
1939—1951

<i>Rate Revision Date</i> (1)	<i>All Industries</i>		<i>Manufacture & Utilities</i>		<i>Contracting & Quarrying</i>		<i>Other Industries</i>	
	<i>Rate Change</i> (2)	<i>Cumulative</i> (3)	<i>Rate Change</i> (4)	<i>Cumulative</i> (5)	<i>Rate Change</i> (6)	<i>Cumulative</i> (7)	<i>Rate Change</i> (8)	<i>Cumulative</i> (9)
7-1-39	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6-30-40	.895	.895	.900	.900	.898	.898	.888	.888
6-30-41	.865	.774	.848	.763	.864	.776	.884	.785
7-1-42	.903	.699	.875	.668	.845	.656	.981	.770
6-30-43	.905	.633	.935	.625	.857	.562	.907	.698
6-30-44	.917	.580	.945	.591	.910	.511	.886	.618
6-30-45	1.021 ¹	.592	1.029 ³	.608	1.017 ⁵	.520	1.013 ⁷	.626
6-30-46	.899	.532	.968	.589	.872	.453	.835	.523
6-30-47	.996	.530	1.082	.637	.955	.433	.918	.480
6-30-48	.955	.506	.971	.619	.919	.398	.953	.457
6-30-49	1.042 ²	.527	1.075 ⁴	.665	.997 ⁶	.397	1.026 ⁸	.469
6-30-50	.926	.488	.915	.608	.857	.340	.987	.463
7-1-51	.956	.467	.975	.593	.932	.317	.948	.439

(1) Law Amendment Factor 1.08 (4) Law Amendment Factor 1.12 (7) Law Amendment Factor 1.09
 (2) Law Amendment Factor 1.12 (5) Law Amendment Factor 1.09 (8) Law Amendment Factor 1.11
 (3) Law Amendment Factor 1.07 (6) Law Amendment Factor 1.15

EXHIBIT VII

TOTAL EXPERIENCE—ALL INDUSTRIES

PAYROLLS, PREMIUMS AND LOSSES AS REPORTD BY POLICY YEARS, 1944—1948

Policy Year (1)	Payroll (000 omitted) (2)	Earned Standard Premium (3)	Incurred Losses Unmodified (4)	Ave. Rate (5) ÷ (2)	Loss Ratio (4) ÷ (3)	Pure Premiums					
						All (4) ÷ (2)	Death & P.T. (8)	Major Perm. (9)	Minor Perm. (10)	Temp. (11)	Med. (12)
1944	\$3,828,157	\$25,494,079	\$12,394,961	.67	.486	.32	.06	.07	.02	.06	.11
1945	3,900,231	25,641,034	12,970,624	.66	.506	.33	.06	.08	.02	.07	.11
1946	4,660,751	30,703,701	14,932,309	.66	.486	.32	.05	.07	.02	.06	.11
1947	5,438,519	34,208,857	17,032,348	.63	.498	.31	.04	.09	.02	.05	.11
1948	5,836,704	36,296,841	17,417,139	.62	.480	.30	.03	.10	.02	.04	.11
All	\$23,664,362	\$152,344,512	\$ 74,747,381	.64	.491	.32	.05	.08	.02	.05	.11

PAYROLLS AND LOSSES AS REPORTED BY KIND OF INJURY—POLICY YEARS 1944—1948

Policy Year (1)	Payroll (000 omitted) (2)	All Losses (3)	Death		Perm. Total		Major Perm.		Minor Perm.		Temporary		Medical (14)
			No. (4)	Amount* (5)	No. (6)	Amount* (7)	No. (8)	Amount* (9)	No. (10)	Comp. (11)	No. (12)	Comp. (13)	
1944	\$3,828,157	\$12,394,961	383	\$1,300,175	110	\$818,379	1,272	\$2,775,921	1,447	\$802,474	37,472	\$2,403,667	\$4,294,345
1945	3,900,231	12,970,624	375	1,361,670	98	786,932	1,434	3,104,550	1,471	881,924	37,123	2,540,089	4,295,459
1946	4,660,751	14,932,309	413	1,595,027	120	956,859	1,511	3,412,173	1,513	918,982	39,860	2,773,266	5,276,002
1947	5,438,519	17,032,348	425	1,653,757	97	758,943	1,753	4,768,984	1,550	969,900	89,809	2,740,520	6,135,244
1948	5,836,704	17,417,189	412	1,640,435	46	284,256	1,814	5,740,266	1,449	912,698	35,491	2,530,522	6,308,962
All	\$23,664,362	\$74,747,381	2,008	\$7,556,064	471	\$3,605,369	7,784	\$19,801,894	7,430	\$4,485,978	189,255	\$12,983,064	\$26,310,012

*Includes Medical Cost

Note: The above tabulations include Silicosis, Asbestosis and Lead cases at reported cost. They exclude Payrolls, Premiums and Losses for policies written under the War Projects Rating Plan.

EXHIBIT VIII

EXPERIENCE EX. LARGE AND EX. MINIMUM PREMIUM RISKS—ALL INDUSTRIES
PAYROLLS, PREMIUMS AND LOSSES AS REPORTED BY POLICY YEARS 1944—1948

Policy Year (1)	Payroll (000 omitted) (2)	Earned Standard Premium (3)	Incurred Losses Unmodified (4)	Ave. Rate (5) ÷ (2)	Loss Ratio (6) ÷ (3)	Pure Premiums					
						All (7) ÷ (2)	Death & P.T. (8)	Major Perm. (9)	Minor Perm. (10)	Temp. (11)	Med. (12)
1944	\$2,780,136	\$17,909,330	\$8,720,884	.64	.487	.31	.05	.07	.02	.06	.11
1945	3,006,645	19,421,008	9,657,874	.65	.497	.32	.05	.08	.02	.06	.11
1946	3,696,382	24,116,989	11,540,522	.65	.479	.31	.05	.07	.02	.06	.11
1947	4,266,809	26,480,080	13,037,995	.62	.492	.31	.04	.08	.02	.05	.11
1948	4,603,575	28,101,575	13,515,640	.61	.481	.29	.03	.10	.02	.04	.11
All	\$18,353,547	\$116,028,982	\$56,472,915	.63	.487	.31	.04	.08	.02	.06	.11

PAYROLLS AND LOSSES AS REPORTED BY KIND OF INJURY—POLICY YEARS 1944—1948

Policy Year (1)	Payroll (000 omitted) (2)	All Losses (3)	Death		Perm. Total		Major Perm.		Minor Perm.		Temporary		Medical (14)
			No. (4)	Amount* (5)	No. (6)	Amount* (7)	No. (8)	Amount* (9)	No. (10)	Comp. (11)	No. (12)	Comp. (13)	
1944	\$2,780,136	\$8,720,884	264	\$873,067	64	\$547,727	892	\$1,876,474	1,036	\$584,015	27,509	\$1,741,220	\$3,093,381
1945	3,006,645	9,657,874	249	917,525	54	504,153	1,094	2,312,330	1,142	675,556	23,961	1,948,478	3,299,332
1946	3,696,382	11,540,522	285	1,131,494	64	649,610	1,184	2,591,267	1,181	716,141	32,261	2,218,243	4,233,767
1947	4,266,809	13,037,995	310	1,187,692	48	487,895	1,350	3,578,971	1,195	756,473	31,581	2,174,773	4,852,191
1948	4,603,575	13,515,640	303	1,174,922	10	122,346	1,434	4,442,125	1,133	723,741	28,664	2,020,940	5,031,566
All	\$18,353,547	\$56,472,915	1,411	\$5,284,700	240	\$2,311,731	5,954	\$14,801,167	5,687	\$3,455,926	143,076	\$10,108,654	\$20,515,737

* Includes Medical Cost.

Note: These tabulations exclude Silicosis, Asbestosis and Lead Cases.

EXHIBIT IX
PAYROLLS AND LOSSES—EX. LARGE AND EX. MINIMUM PREMIUM RISKS—ALL INDUSTRIES
POLICY YEARS 1944—1948

<i>Policy Year</i> (1)	<i>Payroll</i> (000 omitted) (2)	<i>All Losses</i> (3)	<i>No.</i> (4)	<i>Death Amount*</i> (5)	<i>Perm. Total</i> <i>No.</i> (6)	<i>Amount*</i> (7)	<i>Major Perm.</i> <i>No.</i> (8)	<i>Amount*</i> (9)	<i>Minor Perm.</i> <i>No.</i> (10)	<i>Comp.</i> (11)	<i>Temporary</i> <i>No.</i> (12)	<i>Comp.</i> (13)	<i>Medical</i> (14)	<i>Pure Prem.</i> (15)
DEATH, PERMANENT TOTAL, MAJOR PERMANENT AND MINOR PERMANENT COMPENSATION REVISED FOR 7-1-49 BENEFITS														
TEMPORARY COMPENSATION AND MEDICAL AS REPORTED; PAYROLLS AS REPORTED														
1944	\$2,780,186	\$9,697,214	264	\$1,138,501	64	\$759,838	892	\$2,222,488	1,086	\$736,786	27,609	\$1,741,220	\$3,098,381	.349
1945	3,006,645	10,442,729	249	1,137,050	54	618,087	1,094	2,627,045	1,142	812,237	28,961	1,943,478	3,299,832	.347
1946	3,696,382	12,323,701	285	1,374,764	64	769,279	1,184	2,892,753	1,181	844,895	32,261	2,218,243	4,233,767	.333
1947	4,266,809	13,975,659	310	1,465,863	48	563,667	1,350	4,012,961	1,195	906,204	31,581	2,174,773	4,852,191	.328
1948	4,603,575	14,472,415	303	1,429,540	10	140,961	1,434	4,938,306	1,133	861,112	28,664	2,020,940	5,031,566	.314
All	\$18,363,547	\$60,911,718	1,411	\$6,545,718	240	\$2,841,822	5,954	\$16,743,553	5,687	\$4,161,234	149,076	\$10,103,654	\$20,515,737	.332
TRANSLATED PAYROLLS, LOSSES AND PURE PREMIUMS														
1944	\$4,164,133	\$12,611,667	264	\$1,634,914	64	\$398,976	892	\$2,444,232	1,036	\$821,031	27,609	\$2,465,638	\$4,846,831	.303
1945	4,383,985	13,086,863	249	1,543,141	54	335,751	1,094	2,834,266	1,142	887,768	28,961	2,569,734	4,916,203	.299
1946	5,218,229	14,654,322	285	1,765,611	64	393,932	1,184	3,070,290	1,181	907,880	32,261	2,835,213	5,681,396	.281
1947	5,494,186	15,969,416	310	1,917,333	48	295,638	1,350	4,192,596	1,195	954,775	31,581	2,763,924	5,855,100	.291
1948	5,482,884	16,090,044	303	1,874,500	10	62,896	1,434	5,147,510	1,133	890,798	28,664	2,510,559	5,608,781	.293
All	\$24,743,417	\$72,412,312	1,411	\$8,735,549	240	\$1,487,193	5,954	\$17,638,894	5,687	\$4,462,302	149,076	\$13,135,063	\$26,903,311	.293
Pure Premium		.293		.035		.006		.071		.018		.053	.109	

*Includes Medical.

EXHIBIT X
 PREMIUMS, LOSSES AND LOSS RATIOS REPORTED ON
 SCHEDULE Z, 1916-1948
 ALL BUSINESS EXCEPT COAL MINING

<i>Policy Year</i> (1) All	<i>Earned Premiums</i> (2) \$596,173,355	<i>Incurred Losses</i> (3) \$316,760,017	<i>Loss Ratio</i> (4) 53.1
1948	*32,847,073	17,417,139	53.0
1947	*31,553,518	17,032,348	54.0
1946	*28,400,833	14,932,309	52.6
1945	*24,167,292	12,970,624	53.7
1944	*23,853,688	12,394,961	52.0
1943	*25,061,537	12,462,169	49.7
1942	*25,227,932	12,371,735	49.0
1941	*25,689,254	11,587,701	45.1
1940	*24,410,626	10,445,846	42.8
1939	24,128,119	10,357,954	42.9
1938	26,559,185	12,298,641	46.3
1937	23,090,373	11,730,327	50.8
1936	19,037,858	10,356,332	54.4
1935	14,828,661	8,379,300	56.5
1934	14,019,352	7,559,295	53.9
1933	11,957,323	7,284,716	60.9
1932	10,769,288	7,185,892	66.7
1931	12,091,874	8,601,945	71.1
1930	15,031,567	11,012,894	73.3
1929	17,218,940	11,272,079	65.5
1928	17,020,083	10,164,332	59.7
1927	15,236,421	8,501,742	55.8
1926	14,393,349	8,273,042	57.5
1925	13,655,188	8,505,034	62.3
1924	12,241,359	8,079,041	66.0
1923	11,420,137	8,072,320	70.7
1922	9,718,041	6,792,394	69.9
1921	8,972,690	5,172,682	57.6
1920	14,352,391	6,290,100	43.8
1919	13,749,043	4,885,615	35.5
1918	14,521,691	4,683,397	32.3
1917	11,589,303	4,885,360	42.2
1916	9,359,366	4,800,751	51.3

* Net Premiums after returns under Retrospective and Defense Rating Plans.

THE NATIONAL DEFENSE PROJECTS RATING PLAN

BY
WILLIAM LESLIE, JR.

As this is written, a little more than a year has passed since it became the announced policy of the United States to rearm herself and her friends against a new threat to peace and security. American industry has shifted large amounts of industrial capacity to defense production with remarkable dispatch and the casualty insurance companies have followed suit with a revival of the special retrospective rating plan used for government contractors during the last war.

When work was begun on the present plan, the World War II Comprehensive Rating Plan for War Risks¹ was still in effect on a handful of projects although its official application to new projects had ceased as of July 1, 1947 when filings in the various states were withdrawn. Fundamentally, the National Defense Projects Rating Plan is simply a revival of the World War II plan, although sufficient changes in detail have been made to warrant bringing Mr. Haugh's paper up to date for the benefit of students and members of the Society.

The new plan, like its predecessor, provides for the wholesaling of automobile liability, general liability and workmen's compensation insurance in a retrospectively rated package to eligible defense contractors. As was the case with the World War II plan, this form of rating on a net as to commission basis places all types of insurance carriers on an equal footing, price-wise, and permits the Defense Department to place these forms of casualty insurance without resorting to bid.²

DEVELOPMENT OF THE PLAN

In the early summer of 1950 there were indications that the stepping up of the defense program might bring a request from the Defense Department for reactivation of the Comprehensive Rating Plan. Representatives of the insurance industry, aware of this, realized that such a revival would have to be made in the light of experience encountered in the operation of the old plan, the changed conditions with respect to workmen's compensation rate levels and the limitations imposed by the post-war development of universal rate regulation by the states in the liability field. (With a few notable exceptions, compensation insurance rates had been regulated by the states when the former plan was adopted). These considerations led the Mutual Casualty Insurance Rating Bureau and the National Bureau of Casualty Underwriters to appoint committees to meet jointly for the purpose of preparing concrete proposals on which the industry, through the National Council on Compensation Insurance and the independent state compensation rating bureaus, could agree prior to an official request for revival of the old plan from the Defense Department.

Their Joint Committee was composed of:

(American) Lumbermen's Mutual Casualty Company
American Mutual Liability Insurance Company
Employers' Mutual Liability Insurance Company of Wisconsin

¹ Cf. "The Comprehensive Insurance Rating Plan" by Charles J. Haugh; *Proceedings* Vol. XXVIII (1941-2) p. 535. A reading or rereading of this paper is essential to a clear understanding of the present plan.

² Mr. Haugh's paper, referred to above, gives a history of the unworkable situation resulting from the placing of this insurance on the basis of bids.

Liberty Mutual Insurance Company
 Fidelity and Casualty Company of New York
 Hartford Accident and Indemnity Company
 Royal-Liverpool Insurance Group
 Travelers Insurance Company
 United States Fidelity and Guarantee Company

This group divided into subcommittees for consideration of the legal, rating and procedural problems presented by any revision of the former plan. In November of 1950, Mr. Thomas L. Kane was appointed Director of Insurance for the Defense Department. The intensification of the war in Korea brought word that if any changes were contemplated in the World War II plan they should be put forward immediately. As a result, in early December of 1950, an informal oral presentation of the Joint Committee's recommendations were made to Mr. Kane who requested that the recommendations be reduced to writing for consideration by the Military Departments and the Advisory Committee appointed by the Secretary of Defense to consult with Mr. Kane on insurance matters. This latter committee was composed of:

Hon. W. Ellery Allyn, Insurance Commissioner of the State of Connecticut and then President of the National Association of Insurance Commissioners.

Professor Ralph H. Blanchard, School of Business, Columbia University.

Mr. Clayton Hale of the Hale and Hale Company of Cleveland, Ohio.

Mr. Reese F. Hill, then President of the Carolina Casualty Company and now Vice President of the Crum and Forster Group of Companies.

(Mr. Hill is identified as the author of the World War II plan when he was in charge of the insurance section of the War Department—see Mr. Haugh's paper—cited above.

Mr. William S. Lund, Assistant Treasurer, Gulf Oil Company.

At the same time these recommendations were sent to the Rates Committee of the National Council. Subsequent negotiations with the Defense Department led to the adoption of a proposed plan by the Rates Committee on March 1, 1951. At that time the National Council appointed a committee of four stock and four mutual companies to complete the negotiations on the plan with the Defense Department and to develop such forms and related items as would be necessary to put the plan into operation. The Mutual Bureau and the National Bureau named their respective members on the National Council's committee as committees representing their organizations and the group has subsequently met and acted as the Conference Committee on the National Defense Projects Rating Plan. As far as the author knows this is one of the first formalized working committees officially representing three separate rating organizations for the purpose of simultaneously handling a common rating problem since the 1946-8 flurry of new state rate regulatory laws.³

* The Conference Committee is composed of the following companies:
 (American) Lumbermen's Mutual Casualty Insurance Company
 American Mutual Liability Insurance Company
 Employers Mutual Liability Insurance Company of Wisconsin
 Liberty Mutual Insurance Company
 Hartford Accident and Indemnity Company
 Royal-Liverpool Insurance Group
 Travelers Insurance Company
 United States Fidelity and Guarantee Company

The Munitions Board in the Department of Defense approved the National Defense Projects Rating Plan in April 1951 (see Appendix A). Endorsement forms which were being negotiated with the Defense Department received approval of the insurance sections of the Military Departments in June, and of the legal advisors to the Military Departments in August (see Appendix B).

THE PLAN

The National Defense Projects Rating Plan is a retrospective rating plan designed to apply on an over-all basis to Defense Projects from inception to completion. The premium formula is:

$$\text{Premium} = [\text{Fixed charge} + \text{Modified Losses} + \text{Allocated Claim Expense} + \text{Special Assessments}] \times \text{Tax Multiplier.}$$

The premium thus determined is limited to a maximum premium which varies according to risk size.

ELIGIBILITY

Attention is directed to the wording of the plan relating to applicability (Appendix A, Section A). It will be seen that the defense contracts must comprise at least 90% of the payroll of the insured operations but that where the remaining 10% or less of payroll is involved with operations not susceptible of separation from the defense contract operations they must be included for coverage and rating purposes. This departure from the practice under the former Comprehensive Rating Plan should serve to simplify greatly what could otherwise be an almost insoluble problem. It would be most difficult, for instance, to assign the injuries between defense and non-defense work in a plant engaged almost 100% in defense work but where occasional civilian orders are undertaken for identically the same product.

The increase in the eligibility requirement to \$10,000 estimated annual premium as contrasted to \$5,000 estimated premium "for the insurance" under the former plan will serve properly to restrict the new plan's use to the sort of "large risk" defense project where retrospective rating would be appropriate.

MAXIMUM PREMIUM

The records of the National Council on Compensation Insurance show the following countrywide compensation loss ratios for the war years and for the three years preceding the reactivation of the National Defense effort.

<i>Calendar Year</i>	<i>Ratio of Incurred Losses to Earned Premium—Standard Basis</i>
1942	.536
1943	.525
1944	.534
1945	.567
1948	.525
1949	.542
1950	.616

A major change in the compensation ratemaking procedure, i.e. the development of the Rate Level Adjustment Factor, had been introduced in the early months of 1949 with the result that compensation loss ratios can not be expected to develop so favorably as during the war years even if wage rates should again make the sort of sharp increase they did during the war. It is important to note that 1950 is the first year in which the *earned* premium was generated largely from rates which included the Rate Level Adjustment Factor in their development.

Because of this virtual certainty that compensation loss ratios will be higher than during the 1942-45 period the decision was made to abandon the former maximum premium limitation (90% of standard premium for all premium sizes) and seek consideration by the Government of a maximum ratio of 150% of standard premium for all premium sizes. Negotiations led to the use of the graded maximum ratios contained in Plan C at the key sizes; to be applied to 100% of the standard premium with intermediate values determined by interpolation.

FIXED CHARGE

The retrospective "basic premium" of the Defense plan is set forth in the Table of Fixed Charges. Unlike the maximum premium ratio the fixed charge percentage is applied to 90% of the standard premium as was the case with the fixed charge in the World War II plan.

Before making an analysis of the fixed charges a brief outline of the negotiations leading to their establishment is in order.

In the World War II plan the fixed charges were based on 6% for expenses other than claim adjustment plus an insurance charge to provide premium to cover losses in excess of the maximum. Unallocated claim expense was provided for by a loss modification factor of 1.12 applicable to incurred losses excluding allocated claim expense but including project site medical. An estimated average prospective experience rating credit of 10% led to the application of the fixed charge to 90% of the standard premium.

The Comprehensive Rating Plan was adopted generally in early 1942. Since then, of course, the so-called 1943 compensation rating program involving premium discount and Retrospective Rating Plans A, B and C has been almost universally approved and, more recently, Plan D and a profit and contingencies margin in compensation rates. For premium in excess of \$1,000 the amount for administration and audit in these rating schemes is 4.1% and this therefore became the suggested provision in the Defense plan.

In 1950 when negotiations for the adoption of the Defense plan were underway, the average of the various state approved profit and contingency allowances in the retrospective rating plans was approximately 1.9%. The Defense Department had indicated that it would approve the inclusion of a profit margin in the plan but did not want to be in the position of setting a precedent as to precise amount for the state insurance commissioners whose famous Swampscott meeting was yet to come. Although the carriers recommended a 2.5% allowance, a workable compromise was the use of the average of the state approved allowances. The amount for inspection and accident prevention is 2.0% and thus, exclusive of claim adjustment, the expense and profit provisions are 8.0%.

It was further proposed to the Defense Department that an additional 2.0% be included in the fixed charge by way of an allowance for a portion of the unallocated claim expense, the remainder to be provided for in a reduced loss modification factor (1.097—see below). Two considerations led to this proposal. First, in respect to claim handling at defense projects a certain amount of "stand by" facility must be provided, thus generating some expense without regard to amount of loss. Second, some criticism of the loss modification principle can be anticipated because, at first glance, it seems to give the insurance carrier an economic inducement to have losses at a high rather than low level. Any lowering of the loss modification factor would of course minimize this impression.

Initially, then, negotiations with the Defense Department centered on the following table of fixed charges to be applied to 100% of the standard premium as compared with the charges in the World War II plan.

TABLE OF FIXED CHARGES

<i>Standard Premium</i>	<i>Proposed Values Applicable to 100% of (1)</i>	<i>World War II Values Applicable to 90% of (1)</i>
(1)	(2)	(3)
5,000	Not available	.370
10,000	.161	.290
25,000	.130	.240
50,000	.113	.184
100,000	.105	.125
150,000	.102	.115
200,000	.102	.105
250,000	.102	.097
300,000	.102	.090
350,000	.102	.075
400,000	.102	.065
450,000		
to		
700,000	.102	.065
700,000 & Over	.101	.063

(The effect on the proposed fixed charges of the graded maximum ratios can be readily seen.)

An analysis of these charges is shown below:

NATIONAL DEFENSE PROJECTS
RATING PLAN

Standard Premium (1)	Proposed Fixed Charge (2)	Max. Prem. Ratios		Ratio Rated to Exp. Losses (4) — (2)	Insurance Charge		Profit Contingency and Expense Provisions (8)	Balance (2) — (7) — (8)
		Incl. Tax (3)	Excl. Tax (3) ÷ 1.031 (4)	$\frac{(4) - (2)}{1.097 \times .60}$ (5)	Table M Reading (6)	Ratio to Prem. (6) × 1.097 × .60 (7)		
\$10,000	.161	1.650	1.600	2.19	.093	.061	.100	.000
25,000	.130	1.400	1.358	1.87	.046	.030	.100	.000
50,000	.113	1.350	1.309	1.82	.019	.013	.100	.000
100,000	.105	1.280	1.242	1.73	.007	.005	.100	.000
150,000	.102	1.250	1.212	1.69	.003	.002	.100	.000
200,000	.102	1.210	1.174	1.63	.003	.002	.100	.000
250,000	.102	1.180	1.145	1.59	.003	.002	.100	.000
300,000	.102	1.140	1.106	1.53	.003	.002	.100	.000
350,000	.102	1.110	1.077	1.48	.003	.002	.100	.000
400,000	.102	1.070	1.038	1.42	.005*	.003*	.100	-.001*
500,000	.102	1.000	.970	1.32	.005*	.003*	.100	-.001*
700,000	.101	1.000	.970	1.32	.002	.001	.100	.000

NOTES: Col. 6 Entered with Col. (5) and expected losses 60% of Col. (1).

Col. 8 Expenses—Administration and Audit	.041
Inspection	.020
Claim Adjustment	.020
Profit and Contingencies	.019
Total	.100

* This apparent reversal is not significant. Considerable merit lay in using Plan C maximum ratios which, under that plan, are tested only to within \pm .005 of the required balance.

NATIONAL DEFENSE PROJECTS RATING PLAN

Standard Premium (1)	Max. Prem. Ratios Incl. Ex. Tax		Adopted Fixed Charges On		Ratio Rated to Exp. Losses	Insurance Charge		Profit, Contingency and Expense Provisions (9)	Balance (5)-(8)-(9) (10)
	(2)	(2) + 1.031 (3)	90% Col. (1) (4)	100% Col. (1) (4) × .90 (5)	(3)-(5) 1.12 × .60 (6)	Table M For (6) (7)	Std. Prem. (7) × 1.12 × .60 (8)		
10,000	1.650	1.600	.141	.127	2.192	.093	.062	.072	-.007
25,000	1.400	1.358	.110	.099	1.874	.046	.031	.072	-.004
50,000	1.350	1.309	.093	.084	1.823	.019	.013	.072	-.001
100,000	1.280	1.242	.085	.077	1.734	.007	.005	.072	.000
150,000	1.250	1.212	.082	.074	1.694	.003	.002	.072	.000
200,000	1.210	1.174	.082	.074	1.637	.003	.002	.072	.000
250,000	1.180	1.145	.082	.074	1.594	.003	.002	.072	.000
300,000	1.140	1.106	.082	.074	1.536	.003	.002	.072	.000
350,000	1.110	1.077	.082	.074	1.493	.003	.002	.072	.000
400,000	1.070	1.038	.082	.074	1.435	.004*	.003*	.072	-.001*
500,000	1.000	.970	.082	.074	1.333	.004*	.003*	.072	-.001*
700,000 & Over	1.000	.970	.081	.073	1.335	.001	.001	.072	.000

Notes: Col. (6) Expected Loss Ratio = .60 × Loss Conversion Factor 1.12 = .672

Col. (7) Insurance charge from Table M corresponding to expected losses 60% of Col. (1)

Col. (10) Expenses .041 Administration and Audit

.020 Inspection "

.019 Profit and Contingencies

.080 Total on 90% of Premium

.080 × .90 = .072 on 100% of Premium

*See note above.

The Defense Department, having agreed to the graded maximum premium felt it more desirable from their point of view to retain the 1.12 loss modification factor from the World War II plan and also the former concept of an average 10% credit, to be considered, however, only as respects the fixed charge. This means that the fixed charge, unlike the maximum ratio, is applied to 90% of the standard premium. The 2.0% initially proposed for inclusion in the fixed charge for claim expense was restored, in proper ratio, to the loss modification factor. The fixed charge percentages finally acceptable to the Defense Department were in each case the earlier proposed set minus a flat 2.0%.

A test of these fixed charges, shown below, indicates that a balance for profit and contingency of 1.9% remains for all premium sizes except those under \$50,000. Except for the \$10,000 premium size (the minimum for applicability of the plan and a size which will be rarely, if ever, found in practice) the balances are within the $\pm .005$ of the desired amount as is the case with Retrospective Rating Plans A, B, C and D. These balances are quite apparently within the tolerance limits of the excess pure premium ratio calculations and graduations which underly Table M.

LOSS MODIFICATION FACTOR

The loss modification factor is applicable to the incurred losses including project site medical but is not applicable to allocated claim expense for automobile or general liability as would be the case under Plan D.

The purpose of the factor is to provide for unallocated loss expense. When related to losses the loading for this expense in the various lines included under the plan is as follows:

<i>Line of Insurance</i>	<i>Unallocated Claim Expense Ratio To Premium</i>	<i>Permissible Loss Ratio</i>	<i>Ratio of Unallocated Claim Expense to Losses (2) ÷ (3)</i>
<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>
Compensation	.080	.600	.133
Automobile B. I.	.061	.554	.110
Automobile P. D.	.098	.517	.190
General Liability	.075	.510	.147

An examination of the rates and permissible loss ratios for the various lines leads to the reasonable assumption that incurred losses will be split among the various lines approximately as follows:

Compensation	.90
Automobile B. I.	.04
Automobile P. D.	.03
General Liability	.03
Total	1.00

This produces an average indicated ratio of unallocated claim expense to losses of .135.

The balance of .015 between the indicated factor of 1.135 and the adopted factor of 1.12 is accounted for both by the application of the factor to project site medical (.010) and the inclusion of workmen's compensation allocated claim expense along with liability allocated claim expense as one of the parts of the final premium formula (.005).

Under usual commercial practice project site medical would not be furnished by an insurance carrier to a retrospectively rated risk for inclusion with incurred losses for the obvious reason that the insured is reimbursed for the portion of expense of medical facilities attributable to compensation and then finds this amount in his premium calculation increased, say, 13%. In the negotiations leading to the adoption of the plan the suggestion was made to the Defense Department that this principle in respect to handling project site medical be followed for its contractors and that the usual non-participating Plan D factor of 1.13 be adopted for the Defense Rating Plan. This was to be further modified by the inclusion of 2.0% for unallocated claim expense in the fixed charge leaving 1.097 as the recommended loss modification factor.

$(1.13 - \frac{.02}{.60} = 1.097$; see above) The Defense Department rejected these suggestions, however. They wanted insurance company supervision over project site medical installation and administration on the one hand and they desired the smallest acceptable departure from World War II fixed charges and loss modification factor on the other. As a result the factor of 1.12, the fixed charges described above and the inclusion of a portion of project site medical expense with incurred losses were finally adopted.

TAX MULTIPLIER

Experience with final settlements under the World War II plan led to the conclusion that a precalculated table of tax multipliers was impractical. As a result the present plan provides for formula calculation of the tax multipliers for each line of insurance by state. Miscellaneous taxes, licenses and fees, social security taxes, and rating and administrative bureaus are considered equal to a premium tax of 1.0% which is added to the state tax before inclusion in the usual retrospective rating plan tax multiplier calculation. The Defense Rating Plan here differs from usual retrospective rating plans in putting bureau expense with taxes rather than in the fixed charge.

SPECIAL ASSESSMENTS

These are assessments not levied as a tax based on premium, such as those for Industrial Board or Commission expenses.

Examples of special assessments are:

Kansas

The Kansas Compensation Act provides for levying certain fees per claim which are paid into a fund for the support of the Industrial Commission.

Maryland

The Maryland Compensation Act provides for an assessment per \$100 of payroll for the expenses of the State Industrial Accident Commission.

New York

The New York Compensation Law provides for an assessment based on paid indemnity losses for the expenses of the Workmen's Compensation Board.

Assessment factors are generally applicable to a different period than the policy period. To obtain the factor for a particular policy period the applicable factors will be pro rated.

When an interim adjustment is due before the applicable factor is available the latest available factor will be used.

RATES

Simplification of the rating for standard premium calculation purposes was one of the goals eagerly sought by the carriers and the Defense Department. This has been accomplished in large measure by the inclusion in the plan of payroll rates for automobile and general liability and specific provision for the use of average or composite rates for compensation.

The World War II plan was promulgated prior to the S.E.U.A. decision and, therefore, it was in order then to specify the rates of a particular Bureau Manual for use in connection with rated projects. By 1950 the legal picture had changed radically. Insurance was then "commerce"; interstate commerce where it was transacted across state lines and, by virtue of the McCarran Act, free from the impact of federal anti-trust statutes only to the extent that state regulation was in force. The rate regulation by the states, which is all but universal, involves among other things the licensing of rating bureaus to act in connection with filings for their members and subscribers only. Any rates to be used in connection with the Defense Rating Plan must, therefore, be filed rates; either by a rating organization on behalf of members and subscribers or by individual insurers who are independent. For this reason the plan makes no reference to any liability manuals but instead contains payroll rates and appropriate excess limits tables for use in connection with Defense Project coverage.

The liability rates are primarily based on the relationship of the standard premiums for coverage under the World War II plan and the payrolls developed. It will be recalled that during the War manual rates were discounted a uniform 50% before use under the plan as a reflection of the reduced public liability hazards of Defense Projects.

COVERAGE

The coverage given by the policies to be rated under the plan is broad and complete. Employer's liability including occupational disease coverage under paragraph 1 (b) is written for limits of 50/100 and extra legal medical in specified states having limited medical benefits may be granted for \$10,000 or more in addition to full statutory coverage.

Automobile Bodily Injury and Property Damage are written on the comprehensive forms and give coverage for all owned, non-owned and hired automobiles used in connection with the project whether on or off the premises. Attention is directed to section 2 of the Automobile Liability Endorsement (Appendix B, Endorsement 3).

General Liability Bodily Injury coverage which is primary to sub-contractors and primary and protective to all principal contractors and architect-engineers is also on the comprehensive form. Contractual liability coverage not contemplated by the Standard Policy Form and Products Liability coverage are not included in the rates for the plan but can be included by endorsement on an (a) rate basis subject to agreement between the Government and the carrier involved.

General Liability Property Damage is written only on an optional basis and at (a) rates and, by agreement with the Defense Department, on a "caused by accident" basis only.

OCCURRENCE BASIS

Automobile bodily injury and property damage liability and general liability bodily injury are written on the "occurrence" basis. This is done by eliminating the words "caused by accident" from the insuring agreement and by substituting for the words "accident" or "accidents" the words "occurrence" or "occurrences" where appropriate in other portions of the policy. An added definition relates to occurrence and reads as follows:

"'Occurrence' means an unexpected event or happening or a continuous or repeated exposure to conditions which results during the policy period in bodily injury, sickness or disease, including death at any time resulting therefrom, or, during the policy period in injury to or destruction of property, provided the insured did not intend that injury, sickness, disease, death or destruction would result."⁴

WAIVER OF SUBROGATION

The Rating Plan endorsements contain the following language respecting waiver of subrogation against the Government:

"The company waives any rights of subrogation acquired against the United States of America by reason of any payment under this policy; except that such waiver shall not extend to losses caused by acts of the United States of America which are not connected with the contracts and subcontracts covered by Section 1 of this endorsement or with other operations of this insured not a part of but not susceptible of separation from operations performed under such contracts and subcontracts."

The compensation endorsement carries an additional sentence indicating that the carrier does not waive its right to participate in the proceeds of an action against the Government brought by or on behalf of an injured employee. These proceeds would be credited against incurred losses and this clause is for the protection of the Government in these cases.

The problem met by this waiver was, in a sense, one of treating the Government as an additional insured as respects the Defense Project without actually naming it on the policies as such. During World War II the waiver commonly given was initially somewhat meaningless in that no clear right of action against the Government existed anyway. The passage of the Federal Tort Claims Act, following the crash of an Army aircraft into the Empire State Building in New York City, now gives certain specified rights to individuals and others to proceed against the Government for its negligent acts. For this reason, the carriers were willing to waive their subrogation rights for Govern-

⁴ This is the automobile form. The General Liability Form is comparable but omits reference to property damage. See Appendix B, Endorsements 3, 4 and 5.

ment activities connected with the specified project but were not willing to waive them generally. A carrier would probably proceed, for example, against a negligent Post Office truck should it have been responsible for injury to workmen in the course of their employment on an insured Defense Project.

PROJECT SITE MEDICAL

A portion of the salaries of doctors, internes, nurses, technicians and full time orderlies and nurses aides may be assumed by the insurance carrier and included with incurred losses at the time of premium settlement. The percentage of the salaries so included can not exceed specified amounts nor can the project site medical costs exceed specified percentages of standard premium except by special negotiation (see Appendix B, Endorsement 7). As outlined above the carriers agreed to the project site medical arrangement somewhat reluctantly, the initial hope being that such facilities as were desirable would be provided entirely by the contractor under his contract with the Government.

EXPLOSION HAZARD

Many Defense Projects involve the manufacturing or handling of substances manufactured for the express purpose of exploding. The obvious catastrophe exposure of such operations was not satisfactorily met by the provisions of the World War II plan where an additional fixed charge was applicable and where the carriers then went to the reinsurance market for catastrophe coverage. Quotations for such coverage in 1950 were in some cases as high as 26%. A workable solution to the problem was arrived at through the precedent established by the War and Transportation Losses Endorsement in use during the War.⁵ Any loss under any of the policies, whether by explosion or otherwise, which exceeds a specified amount in any one accident or occurrence, is not subject to the maximum premium limitation. These excess losses are subject to the loss modification factor and the tax multiplier and are, therefore, an integral part of the premium to be paid by the contractor. The result of this procedure is to make the catastrophe losses inherent in explosives manufacturing and handling reimbursable by the Government as premium under the plan, and, therefore, these hazards present no reinsurance difficulties as was previously the case.

SETTLEMENTS

The carrier and the contractor are required to make a cumulative adjustment of the retrospective premium at annual intervals until the project is completed. These adjustments will be made within eight months of the policy anniversary dates, in each case covering loss and premium transactions from the inception of the project to the date of the adjustment. Considerable effort has gone into simplifying the paper work problem surrounding these so-called preliminary settlements and the Defense Department's cooperation in this regard has been whole-hearted. The forms which will be required for preliminary settlement have been drawn with an eye to keeping out data which is either immaterial or which is not readily available from the usual records kept in company home offices. For example, detailed information on open cases is

⁵ Cf. Appendix C of Mr. Haugh's article cited above.

frequently maintained only in field offices and such information even if readily available would only be pertinent at the time of final settlement. Obviously most of the cases which are in reserve at the several interim annual periods will have been closed by the time of final settlement, which has been set at twenty months after termination of insurance on the project, based on losses valued eighteen months after termination of the project. Even then individual case reports will be required only where the amount outstanding is in excess of \$1000.

The required forms are shown in Appendix E. Exhibits I, IA, II, III and IV will be required on a cumulative basis and, if the carrier desires, these documents when certified may comprise the bill to be rendered the contractor. Exhibits IA and II are simple summary forms for generating information required for calculating the premium on Exhibit I. Exhibits III and IV, which are listings of claims, are not required if available machine tabulation forms furnish substantially the same information.

As stated above, Forms V and Va (Individual Report—Open Loss) will be required only at final settlement 18 to 20 months after the insurance has expired and, even then, only on cases in excess of \$1000.

INTERIM REPORT OF LOSSES INCURRED

Form VI will be required twice a year for the first six months of each year and for the full twelve months. This form will not be reported cumulatively and has been trimmed of all difficult to obtain or unnecessary information. It should be practical to complete this form within sixty days of the close of the period involved.

INSURANCE ADVISORS

Appendix F contains the advisor's agreement which was worked out between the Defense Department on the one hand and representatives of both agents and brokers on the other. These negotiations were handled entirely by the interested producer's groups and the insurance carriers are not involved with either the selection of an advisor or his fee which is paid directly by the contractor.

This system was devised for the handling of insurance during World War II and is much the same now as it was then. In this way the National Defense Projects Rating Plan itself does not provide for payment of a commission and, thus, all types of carriers irrespective of their usual form of marketing insurance should develop the same premium under the plan for any given project.

CONCLUSION

Because the experience which was had under the World War II plan is still so fresh in both Government and insurance carrier circles, the administrative and procedural problems which have required solution by the Conference Committee have not bulked large. Even now, the handling of National Defense Projects Rating Plan matters has settled down to something of a routine and, if the National emergency which has generated the Defense program continues for a long period, as some predict, present signs are that the third-party lines of casualty insurance on Defense Projects can be handled on a fair and equitable basis for all concerned with a minimum of red tape and confusion.

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APPENDIX A

NATIONAL DEFENSE PROJECTS RATING PLAN

A. APPLICABILITY OF THE PLAN

1. The Plan is available for use in affording workmen's compensation and liability insurance on National Defense Projects where the operations are performed under a contract which provides that the contractor shall be reimbursed for the cost of such insurance by the United States Government or any agency thereof. The Plan may also be applied to the operations under a price redetermination type contract provided the interested Government agency certifies the eligibility of the risk for such application.
2. The Plan shall be applied only to risks for which the payroll for the operations to be performed under eligible contracts is estimated at inception of the Plan to be at least 90% of the estimated payroll for the total operations to be insured under the Plan. Insurance on such contracts let to the same risk by different agencies of the Government may be combined under the Plan with the approval of the agencies involved, provided that one such agency is designated to act for all in the administration of the Plan and in the allocation of insurance costs among the several agencies involved.
3. The Plan shall not be used where the estimated annual premium for the insurance is less than \$10,000.

4. In all cases the Plan must include all other operations of the risk which are not susceptible of separation from those performed under eligible contracts. The insurance carrier shall not be charged with the responsibility of allocating the insurance costs between operations under the Plan, nor between contracts let by different agencies of the Government.
 5. The coverage required under this Plan for an eligible risk may be furnished by two or more carriers with the approval of the Government agency involved. In such cases the Plan shall apply to the combined coverages so afforded and the carriers shall be responsible for the proper division of the final premium between them.
- B. The insurance to which this Plan applies may embrace the combined coverage of the following policies:
1. Workmen's compensation—
 - (a) full statutory coverage,
 - (b) Occupational Disease under paragraph 1(b) by endorsement, with limits of at least \$50,000 each person and \$100,000 aggregate for each year of the policy period,
 - (c) extra legal medical of at least \$10,000 for each injured person in states with limited medical benefits,
 - (d) Employers' Liability Insurance for limits of at least \$50,000 each person in any one accident and, subject to that limit for each person, at least \$100,000 for injuries sustained by two or more persons in any one accident;
 2. Automobile Bodily Injury Liability—insurance for limits of at least \$50,000 each person in any one accident and, subject to that limit for each person, at least \$100,000 for injuries sustained by two or more persons in any one accident, the policy to be written on the Comprehensive Liability form, to cover all owned, non-owned and hired automobiles used in connection with the project, whether on or off the premises.
 3. Automobile Property Damage Liability—insurance for a limit of at least \$5,000 each accident, the policy to be written on the Comprehensive Liability form, to cover all owned, non-owned and hired automobiles used in connection with the project, whether on or off the premises.
 4. Comprehensive General Bodily Injury Liability (primary for all subcontractors and primary and protective for all principal contractors and architect-engineers)—insurance for limits of at least \$50,000 each person in any one accident and, subject to that limit for each person, at least \$100,000 for injuries sustained by two or more persons in any one accident.
 5. General Property Damage Liability—insurance, if carried, to be for such limits as may be agreed upon.
- C. The liability coverage afforded under B-2, B-3 and B-4 shall be on an "occurrence" basis. Any liability coverage afforded under B-5 shall be on a "caused by accident" basis.
- D. The Carrier insuring the risk shall, except when otherwise permitted by the Government Agency concerned, combine the operations of the principal contractor and all of his subcontractors under this Plan.
- E. Policies shall be issued for a term of one year and shall provide for automatic renewal of each anniversary date unless notice of unwillingness to renew is served at least 30 days prior to any such anniversary date. Necessary endorsements shall be attached to tie in renewals (which may be evidenced by renewal certificates) and make the Plan applicable on an over-all basis from inception to cancellation or expiration.
- F. All policies written under this Plan shall be subject to the following provisions:
1. The premium under the Plan shall be a fixed charge plus modified losses plus allocated claim expenses plus special assessments, all multiplied by the appropriate tax multipliers, subject to a maximum premium (see Table of Rating Values).
 - (a) "Standard premium" shall mean the premium determined by the application of the Rules and Rates outlined in the Rules and Rates section of this Plan, without discount to reflect any expense loading modifications.

- (b) "Losses incurred" shall mean the sum of all losses actually paid plus reserves (indemnity and medical) for unpaid losses plus actual hospital and medical expenses.
- (c) "Modified losses" shall mean the losses incurred increased by the application of a factor of 1.12.
- (d) "Allocated claim expenses" shall mean actual payments and reserves for legal expenses, excluding the cost of investigation and adjustment of claims by salaried employees and fee adjusters, but including attorney's fees, court costs, interest, expense for expert testimony, examination, x-ray, autopsy or medical expenses of any kind not incurred for the benefit of the injured or any other expenses incurred under the policy other than payment of indemnity or medical treatment, provided that only those items of expense which can be directly allocated to a specific claim involving litigation or possible litigation when necessary to determine the company's liability shall be included.
- (e) "Special assessments" shall mean assessments, not levied as a tax based on premium, such as those for Industrial Board or Commission expenses.
- (f) "Fixed Charge" is the amount provided for fixed expenses, for losses in excess of the maximum, and for profit and contingencies. Inclusion of contingencies in the fixed charge is to meet unforeseeable events which may take place after final settlement of the premium as set forth in Rule F-5 and shall not be a substitute, at the time of final premium settlement, for adequate reserves on open cases sufficient to cover the probable ultimate cost of such claims. The fixed charge shall be obtained by applying the appropriate percentages as set forth in the Table of Rating Values to 90% of the combined standard premiums for the coverage afforded.
- (g) "Maximum Premium" shall mean the amount obtained by applying the appropriate percentage as set forth in the Table of Rating Values to 100% of the combined standard premiums for the coverages afforded.
- (h) Table of Rating Values:

<i>Standard Premium (Workmen's Compensation and All Liability Coverages Combined)</i>	<i>Fixed Charge Percentage</i>	<i>Maximum Premium Percentage</i>
\$ 10,000	14.1%	165%
25,000	11.0	140
50,000	9.3	135
100,000	8.5	128
150,000	8.2	125
200,000	8.2	121
250,000	8.2	118
300,000	8.2	114
350,000	8.2	111
400,000	8.2	107
500,000	8.2	100
700,000 and over	8.1	100

If the Standard Premium lies between any two of the figures in the Standard Premium column, the Fixed Charge and Maximum Premium percentages shall be interpolated to the nearest one-tenth of one percent.

- (i) "Tax multipliers" shall be computed on the basis of the following formula:

$$\text{Tax Multiplier} = \frac{1}{1.0 - (\text{State taxes based on premium plus } 1.0\%)}$$

In this formula the 1.0% provides for miscellaneous taxes, licenses and fees, for social security taxes, and for the expenses of rating bureaus and administrative boards.

The company shall be reimbursed for state taxes paid in advance which are in excess of those developed by the final adjusted premium and are not recovered from the taxing authority.

2. The deposit premium shall be 15% of the estimated annual standard premium on a monthly adjustment basis.
 3. Under contracts which provide for Government reimbursement of the cost of insurance, the carrier shall be paid not less than 50% of the earned Standard Premium Determined monthly on the basis of expended payrolls or determined at less frequent intervals if the carrier so elects. Under other types of contracts which do not provide for such reimbursement, the carrier shall be paid the full Standard Premium as earned.
 4. Preliminary settlements of premium under the Plan shall be made annually on the basis of completed policy years of experience. The first settlement shall be made within eight months after expiration of the original policy, and subsequent settlements shall be made within eight months after each anniversary date.
 5. Final settlement of premium under the Plan shall be made within twenty (20) months after termination of the insurance based upon a determination of loss reserves made not earlier than eighteen (18) months after such termination, but such final settlement may be deferred by mutual agreement for a further period not exceeding twenty-four (24) months.
If such final settlement is not approved by the Government agency and agreement cannot be reached as to any modification thereof, the final settlement shall be deferred for a further period of as many months, up to twenty-four (24) months, as may be necessary for the determination of such loss reserves.
In the event of disagreement on loss reserves at the end of the aforementioned periods, the matter shall be referred for arbitration to a committee of three, one member of which shall be selected by the Government agency, one by the carrier and the third by those two members.
 6. If the policy is cancelled, the earned standard premium shall be determined on a pro rata basis, but if such cancellation is effected by the insured—except for cancellation on completion of the project—the maximum premium shall be determined on the basis of the standard premium for the full period of insurance contemplated by the original policy and any renewals thereof, obtained by extending the earned standard premium on a pro rata basis.
- G. In the case of projects presenting an abnormal hazard because they involve the manufacture or handling of an explosive substance, the policies shall be endorsed to provide that premium shall be calculated as otherwise set forth in this Plan including the application of a factor of 1.12 to all losses incurred and including application of the appropriate tax multipliers but that all such premium developed from losses in excess of a stated amount of any loss arising out of a single accident shall not be subject to the Maximum Premium. In respect to such projects the Maximum Premium percentages shown in the Table of Rating Values shall be reduced a stated number of points. If the earned standard premium is less than \$100,000 during the period covered by the Plan, the stated amount of loss limitation shall be \$25,000 and the reduction in Maximum Premium percentage shall be twenty points. If the earned standard premium is \$100,000 or over during the period covered by the Plan, the stated amount of loss limitation shall be \$50,000 and the reduction in Maximum Premium percentage shall be ten points. An explosive substance is defined as any substance manufactured for the express purpose of exploding as differentiated from commodities used industrially and which are only incidentally explosive such as gasoline, celluloid, fuel gases and dyestuffs.

RULES AND RATES APPLICABLE TO THIS PLAN

1. WORKMEN'S COMPENSATION INSURANCE

The manual rules and rates of the National Council on Compensation Insurance shall be used as a basis for determining the standard premium for workmen's compensation insurance in all states where the National Council is a rating organization. The National Council's advisory rules and rates shall be used in those states where the National Council is an advisory organization. Independent Bureau rules and rates shall be used in those states where workmen's compensation rates are under the jurisdiction of an Independent Bureau. For Idaho the rates produced by National Council procedure shall be used. None of the foregoing rates shall be subject to experience or schedule rating plans.

An average rate shall be permitted on an individual risk basis, based on estimated payrolls by classification, for projects where the board or Bureau having jurisdiction has been furnished with the data necessary to develop such rates; provided, that such rate shall not apply unless the carrier and the Government agency affected agree to its use. If the operations contemplated by the average rate change substantially during the rating period, at the initiative of either the carrier or the insured, a revised average rate may be negotiated for prospective application based upon the change in operations, subject to the approval of the Government agency affected. However, the average rate once established on the basis of estimated payrolls shall not be subject to retroactive change in the event the estimated payrolls upon which the rate was based should prove to be inaccurate.

No discount which may be provided for in any of the above mentioned manual rules to reflect any reduction in expense shall be applicable in determining the standard premium. The application of the manual rules dealing with overtime and weekly payroll limitation in determining the compensation payroll for computation of the standard premium shall be predicated upon the maintenance by the insured of the precise records prescribed in such rules. Neither averages nor other substitute approximations may be used as a basis for applying such rules.

2. LIABILITY INSURANCE

Automobile and General Liability Insurance shall be provided on a composite rate basis in accordance with the following schedule of basic limits rates (\$5/10,000 B.I. and \$5,000 P.D. for Automobile Liability Insurance and \$5/10,000 B.I. and \$1/10,000 P.D. for General Liability Insurance) per \$100 of compensation payroll:

<i>Type of Risk</i>	<i>Automobile</i>		<i>General Liability</i>	
	<i>B.I.</i>	<i>P.D.</i>	<i>B.I.</i>	<i>P.D.</i>
Manufacturing	.01	.01	.01	(a)
Contracting	.02	.02	.10	(a)
Shipbuilding	.01	.01	.02	(a)
Ship Conversion and Repair	.01	.01	.05	(a)
Explosives	.01	.01	.125	(a)
All Other	(a)	(a)	(a)	(a)

NOTE—The rates for limits required by the Government for individual risks under this Plan shall be obtained by applying to these basic limit rates the appended Increased Limits Tables for Automobile Bodily Injury Liability, Automobile Property Damage Liability and General Bodily Injury Liability respectively; such rates shall be calculated to three decimal places

- (a) As respects Automobile Liability coverage, these rates contemplate comprehensive coverage including owned, non-owned, and hired cars but do not include public automobiles used to carry passengers for a consideration and automobiles classified and rated as long haul truckmen.
- (b) As respects General Bodily Injury Liability coverage, these rates contemplate comprehensive coverage but do not include Contractual Liability hazards which are not contemplated by the Standard Policy Form nor Products Liability hazards.
- (c) Experience and Schedule Rating Plans, the Automobile Fleet Plan, Premium Discount Plans and other individual risk rating plans shall not be used.
- (d) Rates for the following lines of insurance will be the subject of consultation between representatives of the Defense Department and the Conference Committee on the National Defense Projects Rating Plan, and will be filed by or on behalf of the insurer:
 - (1) Automobiles used to carry passengers for a consideration.
 - (2) Automobiles used in long haul trucking operations.
 - (3) Product Liability hazards.

- (4) Contractual Liability hazards other than those contemplated in (b).
- (5) Limits in excess of the Increased Limits Tables referred to in the above Note.
- (6) General Property Damage Liability coverage.
- (7) (a) rated classifications.
- (8) Rating values other than those contemplated by the Plan.

**AUTOMOBILE PROPERTY DAMAGE LIABILITY
INCREASED LIMITS TABLE**

\$ 5,000....100%	\$30,000....121%	\$60,000....126%
10,000....110	35,000....122	70,000....127
15,000....115	40,000....123	80,000....128
20,000....118	45,000....124	90,000....129
25,000....120	50,000....125	100,000....130

**AUTOMOBILE BODILY INJURY LIABILITY
INCREASED LIMITS TABLE**

<i>Upper Limits</i>	<i>Lower Limits</i>													
	5	7.5	10	15	20	25	30	40	50	100	150	200	250	300
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
10	100	107	110	%										
15	104	111	113	116	%									
20	106	113	115	118	120	%								
25	107	114	116	120	121	122	%							
30	108	115	117	121	122	123	124	%						
35	109	116	118	122	123	124	125	%						
40	110	117	119	123	124	125	126	127	%					
45	111	118	120	124	125	126	127	128	%					
50	112	119	121	125	126	127	128	129	130	%				
70	113	120	122	126	127	128	129	130	131	%				
100	114	121	123	127	128	129	130	131	132	133	%			
150	115	122	124	128	129	130	131	132	133	134	135	%		
200	116	123	125	129	130	131	132	133	134	135	136	137	%	
250	117	124	126	130	131	132	133	134	135	136	137	138	139	%
300	118	125	127	131	132	133	134	135	136	137	138	139	140	141

**GENERAL BODILY INJURY LIABILITY
INCREASED LIMITS TABLE**

<i>Limit per Accident</i>	<i>Limit per Person</i>													
	5	7.5	10	15	20	25	30	40	50	100	200	300		
10	1.00	1.05	1.08											
15	1.03	1.08	1.11	1.13										
20	1.04	1.09	1.12	1.14	1.15									
25	1.05	1.10	1.13	1.15	1.16	1.17								
30	1.06	1.11	1.14	1.16	1.17	1.18	1.19							
40	1.07	1.12	1.15	1.17	1.18	1.19	1.20	1.21						
50	1.08	1.13	1.16	1.18	1.19	1.20	1.21	1.22	1.23					
100	1.09	1.14	1.17	1.19	1.20	1.21	1.22	1.23	1.24	1.25				
200	1.10	1.15	1.18	1.20	1.21	1.22	1.23	1.24	1.25	1.26	1.27			
300	1.11	1.16	1.19	1.21	1.22	1.23	1.24	1.25	1.26	1.27	1.28	1.29		

APPENDIX B
ENDORSEMENT 1

Note: The following endorsement is to be issued to form a part of each original Workmen's Compensation and Employers' Liability Policy issued under the National Defense Projects Rating Plan.

NATIONAL DEFENSE PROJECTS RATING PLAN ENDORSEMENT

[Amending Policy Numbered]

Section 1. It is agreed that the premiums for the policies numbered
....., and all renewals thereof issued by the company affording insurance in connection with Government Contract No., to (Name of prime contractor), prime contractor and all subcontractors insured under the policies in connection with a project at shall be a fixed charge plus modified losses plus allocated claim expenses plus special assessments, all multiplied by the applicable tax multipliers, subject to the maximum premium, computed as hereinafter provided:

- (a) "Standard premium" means the sum of the premiums for the original policies and all renewals thereof, computed in accordance with the provisions of the policies, other than this endorsement.
- (b) "Losses incurred" means the sum of all losses (indemnity and medical) actually paid plus reserves for unpaid losses.
- (c) "Modified losses" means the losses incurred multiplied by the factor 1.12.
- (d) "Allocated claim expenses" means actual payments and reserves for legal expenses, excluding the cost of investigation and adjustment of claims by salaried employees and fee adjusters, but including attorney's fees, court costs, interest, expense for expert testimony, examination, X-ray, autopsy or medical expenses of any kind not incurred for the benefit of the injured or any other expenses incurred under the policies other than payment of indemnity or medical treatment, provided that only those items of expense which can be directly allocated to a specific claim involving litigation or possible litigation when necessary to determine the company's liability shall be included.
- (e) "Special assessments" means assessments made against the company by governmental authority because of the insurance afforded under the policies, excluding any assessment levied as a tax based on premium.
- (f) "Fixed charge" is the amount determined by applying to 90% of the standard premium, the fixed charge percentage applicable to 100% of the standard premium as set forth in the Table of Rating Values.
- (g) "Maximum premium" is the amount obtained by multiplying 100% of the standard premium by the applicable maximum premium percentage set forth in the Table of Rating Values.
- (h) Table of Rating Values:

<i>Standard Premium</i>	<i>Fixed Charge</i>	<i>Maximum Premium</i>
\$10,000 and less	14.1%	165%
25,000	11.0	140
50,000	9.3	135
100,000	8.5	128
150,000	8.2	125
200,000	8.2	121
250,000	8.2	118
300,000	8.2	114
350,000	8.2	111
400,000	8.2	107
500,000	8.2	100
700,000 and over	8.1	100

If the standard premium lies between any two of the figures in the standard premium column, the fixed charge and maximum premium percentages shall be interpolated to the nearest one-tenth of one percent.

- (i) "Tax multipliers. The tax multiplier for each line of insurance for each state in which insurance is afforded by the policies shall be computed on the basis of the following formula:

$$\text{Tax Multiplier} = \frac{1}{1.0 \text{ minus (State Taxes based on premium plus 1.0\%)}}$$

In this formula the 1.0 per cent provides for miscellaneous taxes, licenses and fees, social security taxes and the expenses of rating bureaus and administrative boards, paid or payable by the company.

The prime contractor shall reimburse the company for state premium taxes paid which are in excess of those developed by the final premiums for the policies and are not recovered from the taxing authority.

Section 2. The deposit premium shall be retained by the company, without being given effect in any premium settlement, until the time of the final payroll audit after the termination of the insurance to which this endorsement applies, when the deposit premium shall be credited to any premium developed and the excess, if any, returned to the prime contractor.

Section 3. If the contract specified in Section 1 of this endorsement provides that the United States of America shall reimburse the prime contractor for the cost of insurance under the National Defense Projects Rating Plan the prime contractor, unless the policies by endorsement otherwise provide, shall pay the company monthly 50% of the amount of standard premium developed for the particular month. If the contract specified in Section 1 of this endorsement does not provide that the United States of America shall reimburse the contractor for the cost of such insurance, the prime contractor shall pay the company monthly 100% of the standard premium.

Section 4. Between 6 and 8 months after expiration of the first annual policy period, the company shall make a preliminary computation of the premium for the policies for such period with losses incurred valued as of a date not earlier than 6 months after such expiration. Annually thereafter until termination of the insurance under the policies, the company shall make a similar preliminary computation of the premium for all policies theretofore expired with losses incurred valued for each such computation as of a date not earlier than 6 months after the expiration of the most recent annual policy period. Between 6 and 8 months after the termination of the insurance afforded under the policies, the company shall make a preliminary computation of the premium for all of the policies, with losses incurred valued as of a date not earlier than 6 months after such termination.

Section 5. A computation of premium for final settlement purposes under the Plan shall be made by the company within 20 months after termination of the insurance based upon a determination of loss reserves made not earlier than 18 months after termination and such computation shall constitute an offer of final settlement; but, in the event losses so reserved are not approved by the Government and no agreement can be reached as to modification thereof, final settlement shall be deferred for a period or periods not exceeding 24 months.

If upon expiration of 24 months, as above provided, loss reserves as determined by the company are not approved by the Government and no modification thereof can be reached, then final settlement may by mutual agreement be deferred for a further period or periods up to a maximum of 24 months as may be necessary for the agreed determination of loss reserves.

If agreement on loss reserves to be included in the final settlement computation cannot be reached by the Government Agency involved and the company at the time for final settlement, the question of such loss reserves shall be referred for arbitration to a committee of three, one member of which shall be selected by the Government Agency involved, one by the company and the third by these two members. The decision of a majority of the committee with respect to the loss reserves to be included in the computation of the final premium shall be final and binding upon both parties upon approval by the..... of the Department of the

Section 6. Each premium computation required by Sections 4 and 5 shall be made in accordance with Section 1 of this endorsement. Subject to the provisions of Section 2, after

each computation, if the premium thus computed exceeds the premium paid for the policies for the annual period or periods included in such computation, the prime contractor shall pay the excess to the company; if less, the company shall return the unearned portion to the prime contractor.

Section 7. If the policies are canceled, the standard premium shall be determined on a pro rata basis, but if such cancelation is effected by the prime contractor, except for cancelation on completion of the project or cessation of operations of the prime contractor covered by the policies, the maximum premium for the policies shall be based upon the standard premium computed pro rata for the period the policies have been in force and extended pro rata to the termination date originally contemplated under the contract designated in Section 1 of this endorsement; provided,

- (a) such extension shall not be beyond a date 3 years subsequent to the effective date of the original policies, or
- (b) in the event there is no definite termination date specified in such contract the "termination date originally contemplated under the contract" for the purpose of this Section shall be deemed to be a date 3 years subsequent to the effective date of the original policies.

Note: 1. The Company may use its usual attachment clause.

ENDORSEMENT 2

Note: The following endorsement is to be issued to form a part of each Workmen's Compensation and Employers' Liability Policy issued under the National Defense Projects Rating Plan.

GENERAL ENDORSEMENT FOR WORKMEN'S COMPENSATION AND EMPLOYERS' LIABILITY POLICY

[Amending Policy Numbered]

It is agreed that:

Section 1.

NAME OF EMPLOYER

The name and address of this Employer are: (a) (Name and address of prime contractor) prime contractor under Government Contract No. with the United States of America, and (b) (Names and addresses of subcontractors) subcontractors under such contract, and (c) all other contractors and subcontractors under such contract whose contracts with the prime contractor provide that this insurance shall be furnished by the prime contractor. Provided that no contractor or subcontractor described in (c) above whose operations under such contract are conducted away from premises under the control of the prime contractor at which work under such contract is performed shall be an Employer under the policy until an endorsement has been issued and made a part of the policy designating such contractor or subcontractor as an Employer.

The prime contractor agrees to notify the company as soon as practicable of the names of all contractors and subcontractors not named herein whose operations under such contract are conducted at premises under the control of the prime contractor at which work under such contract is performed, but failure so to notify the company shall not invalidate the insurance. Any notice relating to this insurance mailed or delivered by the company to the prime contractor and to the contractors or subcontractors named in the policy shall be deemed notice to all contractors or subcontractors not named in but afforded insurance by the policy.

Section 2.

OPERATIONS COVERED

Such insurance as is afforded by the policy applies to all operations of this Employer in connection with the performance of the contract designated in Section 1 of this endorsement, and to other operations of this Employer not a part of but not susceptible of separation from operations performed under such contract, and shall not apply to any other operations of this Employer.

Section 3. WAIVER OF SUBROGATION AGAINST THE UNITED STATES

The company waives any rights of subrogation acquired against the United States of America by reason of any payment under this policy; except that such waiver shall not extend to losses caused by acts of the United States of America which are not connected with the contracts and subcontracts covered by Section 1 of this endorsement or with the operations of the Employer covered by this policy. This waiver shall not, however, bar the company from enforcing any rights given it by law to participate in the proceeds of any claim or suit brought against the United States of America by an employee of this Employer or the legal representative of such employee to recover damages for injuries, including death resulting therefrom, on account of which the company has paid benefits under a workmen's compensation law, or from joining itself as a party to such suit brought by such employee or legal representative if such joinder is necessary to enforce such rights.

Section 4. CANCELCATION

The policy condition governing cancelation is amended as follows:

- a. The reference therein to a specified number of days is changed to 30 days.
- b. Cancelation by the company shall not be effective unless a copy of the notice of cancelation is mailed to
(Name and address of Government Agency involved)
on the same day that notice of cancelation is mailed or delivered to the Employer.
- c. In the event of cancelation by the Employer the company will as soon as practicable mail notice thereof to the Government Agency named in the preceding paragraph.

Section 5. ALL STATES COVERAGE

In the event this Employer is obligated to pay compensation benefits under any workmen's compensation law of any state or district of the United States other than a workmen's compensation law cited in an endorsement made a part of the policy because of injuries sustained by employees while engaged in operations for this Employer in connection with the contract designated in Section 1 of this endorsement, the company agrees to pay such compensation benefits under the law of any such state other than the law of a state which does not permit the writing of workmen's compensation insurance by private carriers.

Section 6. RENEWAL OF POLICIES

This policy or any renewal thereof shall be automatically renewed on its expiration date unless, at least 30 days prior thereto, either party serves on the other a notice in writing that this policy or any renewal thereof shall not be renewed.

Note: 1. The Company may use its usual attachment clause.

ENDORSEMENT 3

Note: The following endorsement is to be issued to form a part of each Automobile Liability Policy issued under the National Defense Projects Rating Plan.

GENERAL ENDORSEMENT FOR AUTOMOBILE LIABILITY POLICY

[Amending Policy Numbered]'

It is agreed that:

Section 1. NAMED INSURED

The name and address of the named insured are: (a)
..... (Name and address of prime contractor)
prime contractor under Government Contract No.
with the United States of America, and (b)
..... (Names and addresses of subcontractors)
subcontractors under such contract, and (c) all other contractors and subcontractors under such contract whose contracts with the prime contractor provide that this insurance shall be furnished by the prime contractor. Provided that no contractor or subcontractor de-

scribed in (c) above whose operations under such contract are conducted away from premises under the control of the prime contractor at which work under such contract is performed shall be insured under the policy until an endorsement has been issued and made a part of the policy designating such contractor or subcontractor as a named insured.

The prime contractor agrees to notify the company as soon as practicable of the names of all contractors and subcontractors not named herein whose operations under such contract are conducted at premises under the control of the prime contractor at which work under such contract is performed, but failure so to notify the company shall not invalidate the insurance.

Any notice relating to this insurance mailed or delivered by the company to the prime contractor and to the contractors or subcontractors named in the policy shall be deemed notice to all contractors or subcontractors not named in but afforded insurance by the policy

Section 2. AUTOMOBILES COVERED

Such insurance as is afforded by the policy applies to any automobile maintained for use or used by the named insured in the performance of the contract designated in Section 1 of this endorsement or in operations not a part of but not susceptible of separation from operations under such contract and shall not apply to any other automobile except while being used in the performance of such contract.

Any automobile furnished the named insured by the United States of America for use in the performance of such contract shall be deemed to be an owned automobile as defined in the policy.

Section 3. WAIVER OF SUBROGATION AGAINST THE UNITED STATES

The company waives any rights of subrogation acquired against the United States of America by reason of any payment under this policy; except that such waiver shall not extend to losses caused by acts of the United States of America which are not connected with the contracts and subcontracts covered by Section 1 of this endorsement or with other operations of this insured not a part of but not susceptible of separation from operations performed under such contracts and subcontracts.

Section 4. CANCELTION

The policy condition governing cancelation is amended as follows:

- a. The reference therein to a specified number of days is changed to 30 days.
- b. Cancelation by the company shall not be effective unless a copy of the notice of cancelation is mailed to
(Name and address of Government Agency involved)
on the same day that notice of cancelation is mailed or delivered to the named insured.
- c. In the event of cancelation by the named insured the company will as soon as practicable mail notice thereof to the Government Agency named in the preceding paragraph.

Section 5. INTERPRETATION OF CROSS LIABILITY

Except with respect to the limits of liability, such insurance as is afforded by the policy applies separately to each interest insured under the policy.

Section 6. AMENDMENT OF COVERAGES A AND B—OCCURRENCE

The Insuring Agreements—"Coverage A—Bodily Injury Liability" and "Coverage B—Property Damage Liability" are amended by elimination of the words "caused by accident."

It is agreed that as respects the Bodily Injury Liability and Property Damage Liability Coverages:

- (a) The word "occurrence" is substituted for the word "accident" wherever the word "accident" appears elsewhere in the policy.
- (b) The Insuring Agreement—"Policy Period, Territory," is amended by the elimination of the words "accidents which occur during the policy period" and the substitution therefor of the words "occurrences during the policy period."

- (c) The condition of the policy are amended by inclusion of the following "Definition:"
 "Occurrence" means an unexpected event or happening or a continuous or repeated exposure to conditions which results during the policy period in bodily injury, sickness or disease, including death at any time resulting therefrom, or, during the policy period, in injury to or destruction of property, provided the insured did not intend that injury, sickness, disease, death or destruction would result.

All damages arising out of such exposure to substantially the same general conditions shall be considered as arising out of one occurrence.

Section 7. AMENDMENT OF PREMIUM CONDITION

The condition "Premium" is amended to read:

The premium bases and rates for the hazards described in the declarations are stated therein. Premium bases and rates for hazards not so described are those applicable under the rules of the National Defense Projects Rating Plan.

The premium base, unless otherwise stated in an endorsement made a part of the policy, is the remuneration earned during the policy period by employees of the named insured as reported to the company for computation of the standard premium for the concurrent Workmen's Compensation and Employers' Liability insurance afforded to the named insured.

Section 8. RENEWAL OF POLICIES

This policy or any renewal thereof shall be automatically renewed on its expiration date unless, at least 30 days prior thereto, either party serves on the other a notice in writing that this policy or any renewal thereof shall not be renewed.

Section 9. PREMIUM ADJUSTMENT

The premium for this policy shall be computed in accordance with the National Defense Projects Rating Plan Endorsement and any amendatory endorsement applicable thereto, forming a part of Policy No.

(Insert No. of Workmen's Compensation Policy applicable to the first annual policy period.)

Note: 1. The Company may use its usual attachment clause.

ENDORSEMENT 4

Note: The following endorsement is to be issued to form a part of each General Liability Policy issued under the National Defense Projects Rating Plan.

GENERAL ENDORSEMENT FOR GENERAL LIABILITY POLICY

[Amending Policy Numbered]²

It is agreed that:

Section 1. NAMED INSURED

The name and address of the named insured are: (a)
 (Name and address of prime contractor).....
 prime contractor under Government Contract No.
 with the United States of America, and (b)
 (Names and addresses of subcontractors)
 subcontractors under such contract, and (c) all other contractors and subcontractors under such contract whose contracts with the prime contractor provide that this insurance shall be furnished by the prime contractor. Provided that no contractor or subcontractor described in (c) above whose operations under such contract are conducted away from premises under the control of the prime contractor at which work under such contract is performed shall be insured under the policy until an endorsement has been issued and made a part of the policy designating such contractor or subcontractor as a named insured.

The prime contractor agrees to notify the company as soon as practicable of the names of all contractors and subcontractors not named herein whose operations under such con-

tract are conducted at premises under the control of the prime contractor at which work under such contract is performed, but failure so to notify the company shall not invalidate the insurance.

Any notice relating to this insurance mailed or delivered by the company to the prime contractor and to the contractors or subcontractors named in the policy shall be deemed notice to all contractors or subcontractors not named in but afforded insurance by the policy.

Section 2. OPERATIONS COVERED

Such insurance as is afforded by the policy applies to all operations of the named insured in connection with the performance of the contract designated in Section 1 of this endorsement, and to operations of the named insured not a part of but not susceptible of separation from operations under such contract, and shall not apply to any other operations of the named insured.

Section 3. WAIVER OF SUBROGATION AGAINST THE UNITED STATES

The company waives any rights of subrogation acquired against the United States of America by reason of any payment under this policy; except that such waiver shall not extend to losses caused by acts of the United States of America which are not connected with the contracts and subcontracts covered by Section 1 of this endorsement or with the operations of the insured covered by this policy.

Section 4. CANCELTION

The policy condition governing cancelation is amended as follows:

- a. The reference therein to a specified number of days is changed to 30 days.
- b. Cancelation by the company shall not be effective unless a copy of the notice of cancelation is mailed to
(Name and address of Government Agency involved)
on the same day that notice of cancelation is mailed or delivered to the named insured.
- c. In the event of cancelation by the named insured the company will as soon as practicable mail notice thereof to the Government Agency named in the preceding paragraph.

Section 5 INTERPRETATION OF CROSS LIABILITY

Except with respect to the limits of liability, such insurance as is afforded by the policy applies separately to each interest insured under the policy.

Section 6. EXCLUSION OF PRODUCTS HAZARD

The policy does not apply to the products hazard as defined in the policy or to a warranty of goods or products within the policy definition of the word "contract".

Section 7 AMENDMENT OF COVERAGE A—OCCURRENCE

The Insuring Agreement—"Coverage A—Bodily Injury Liability" is amended by elimination of the words "caused by accident".

It is agreed that as respects Bodily Injury Liability Coverage only:

- (a) The word "occurrence" is substituted for the word "accident" wherever the word "accident" appears elsewhere in the policy.
- (b) The Insuring Agreement—"Policy Period, Territory." is amended by the elimination of the words "accidents which occur during the policy period" and the substitution therefor of the words "occurrences during the policy period."
- (c) The conditions of the policy are amended by inclusion of the following "Definition:" "Occurrence" means an unexpected event or happening or a continuous or repeated exposure to conditions which results during the policy period in bodily injury, sickness or disease, including death at any time resulting therefrom, provided the insured did not intend that injury, sickness, disease or death would result. All damages arising out of such exposure to substantially the same general conditions shall be considered as arising out of one occurrence.

Section 8. AMENDMENT OF PREMIUM CONDITION

The condition "Premium" is amended to read:

The premium bases and rates for the hazards described in the declarations are stated therein. Premium bases and rates for hazards not so described are those applicable under the rules of the National Defense Projects Rating Plan.

The premium base, unless otherwise stated in an endorsement made a part of the policy, is the remuneration earned during the policy period by employees of the named insured as reported to the company for computation of the standard premium for the concurrent Workmen's Compensation and Employers' Liability insurance afforded to the named insured.

Section 9. RENEWAL OF POLICIES

This policy or any renewal thereof shall be automatically renewed on its expiration date unless, at least 30 days prior thereto, either party serves on the other a notice in writing that this policy or any renewal thereof shall not be renewed.

Section 10. PREMIUM ADJUSTMENT

The premium for this policy shall be computed in accordance with the National Defense Projects Rating Plan Endorsement and any amendatory endorsement applicable thereto, forming a part of Policy No.

(Insert No. of Workmen's Compensation policy applicable to the first annual policy period.)
Note: 1. The Company may use its usual attachment clause.

ENDORSEMENT 5

Note: The following endorsement is to be issued to form a part of each Comprehensive Liability policy issued under the National Defense Projects Rating Plan.

GENERAL ENDORSEMENT FOR COMPREHENSIVE LIABILITY POLICY
(Automobile and General Liability)
[Amendment Policy Numbered]¹

It is agreed that:

Section 1. NAMED INSURED

The name and address of the named insured are: (a)
(Name and address of prime contractor)

.....
prime contractor under Government Contract No.
with the United States of America, and (b)
(Names and addresses of subcontractors)

.....
subcontractors under such contract, and (c) all other contractors and subcontractors under such contract whose contracts with the prime contractor provide that this insurance shall be furnished by the prime contractor. Provided that no contractor or subcontractor described in (c) above whose operations under such contract are conducted away from premises under the control of the prime contractor at which work under such contract is performed shall be insured under the policy until an endorsement has been issued and made a part of the policy designating such contractor or subcontractor as a named insured.

The prime contractor agrees to notify the company as soon as practicable of the names of all contractors and subcontractors not named herein whose operations under such contract are conducted at premises under the control of the prime contractor at which work under such contract is performed, but failure so to notify the company shall not invalidate the insurance.

Any notice relating to this insurance mailed or delivered by the company to the prime contractor and to the contractors or subcontractors named in the policy shall be deemed notice to all contractors or subcontractors not named in but afforded insurance by the policy.

Section 2.

HAZARDS COVERED

- (a) With respect to the ownership, maintenance or use of automobiles such insurance as is afforded by the policy applies to any automobile maintained for use or used by the named insured in the performance of the contract designated in Section 1 of this endorsement or in operations not a part of but not susceptible of separation from operations under such contract and shall not apply to any other automobile except while being used in the performance of such contract.

Any automobile furnished the named insured by the United States of America for use in the performance of such contract shall be deemed to be an owned automobile as defined in the policy.

- (b) Such insurance as is afforded by the policy, other than with respect to the ownership, maintenance or use of automobiles, applies to all operations of the named insured in connection with the performance of the contract designated in Section 1 of this endorsement, and to operations of the named insured not a part of but not susceptible of separation from operations under such contract, and shall not apply to any other operations of the named insured.

Section 3. WAIVER OF SUBROGATION AGAINST THE UNITED STATES

The company waives any rights of subrogation acquired against the United States of America by reason of any payment under this policy; except that such waiver shall not extend to losses caused by acts of the United States of America which are not connected with the contracts and subcontracts covered by Section 1 of this endorsement or with the operations of the insured covered by this policy.

Section 4.

CANCELATION

The policy condition governing cancellation is amended as follows:

- a. The reference therein to a specified number of days is changed to 30 days.
b. Cancellation by the company shall not be effective unless a copy of the notice of cancellation is mailed to

(Name and address of Government Agency involved)
on the same day that notice of cancellation is mailed or delivered to the named insured.

- c. In the event of cancellation by the named insured the company will as soon as practicable mail notice thereof to the Government Agency named in the preceding paragraph.

Section 5.

INTERPRETATION OF CROSS LIABILITY

Except with respect to the limits of liability, such insurance as is afforded by the policy applies separately to each interest insured under the policy.

Section 6.

EXCLUSION OF PRODUCTS HAZARD

The policy does not apply to the products hazard as defined in the policy or to a warranty of goods or products within the policy definition of the word "contract."

Section 7. AMENDMENT OF COVERAGES A AND B—OCCURRENCE

The Insuring Agreements—"Coverage A—Bodily Injury Liability" is amended by elimination of the words "and caused by accident" and "Coverage B—Property Damage Liability—Automobile" is amended by elimination of the words "caused by accident."

It is agreed that as respects Bodily Injury Liability Coverage and Property Damage Liability—Automobile Coverage, only:

- (a) The word "occurrence" is substituted for the word "accident" wherever the word "accident" appears elsewhere in the policy.
(b) The Insuring Agreement—"Policy Period, Territory." is amended by the elimination of the words "accidents which occur during the policy period" and the substitution thereof of the words "occurrences during the policy period."

- (c) The Conditions of the policy are amended by inclusion of the following "Definition:"
 "Occurrence" means an unexpected event or happening or a continuous or repeated exposure to conditions which results during the policy period in bodily injury, sickness or disease, including death at any time resulting therefrom, or, during the policy period, in injury to or destruction of property, provided the insured did not intend that injury, sickness, disease, death or destruction would result. All damages arising out of such exposure to substantially the same general conditions shall be considered as arising out of one occurrence.

Section 8. AMENDMENT OF PREMIUM CONDITION

The condition "Premium" is amended to read:

The premium bases and rates for the hazards described in the declarations are stated therein. Premium bases and rates for hazards not so described are those applicable under the rules of the National Defense Projects Rating Plan.

The premium base, unless otherwise stated in an endorsement made a part of the policy, is the remuneration earned during the policy period by employees of the named insured as reported to the company for computation of the standard premium for the concurrent Workmen's Compensation and Employers' Liability insurance afforded to the named insured.

Section 9. RENEWAL OF POLICIES

This policy or any renewal thereof shall be automatically renewed on its expiration date unless, at least 30 days prior thereto, either party serves on the other a notice in writing that this policy or any renewal thereof shall not be renewed.

Section 10. PREMIUM ADJUSTMENT

The premium for this policy shall be computed in accordance with the National Defense Projects Rating Plan Endorsement and any amendatory endorsement applicable thereto, forming a part of Policy No.

(Insert No. of Workmen's Compensation Policy applicable to the first annual policy period.)

Note: 1. The Company may use its usual attachment clause.

ENDORSEMENT 6

Note: The following endorsement is to be used in connection with projects presenting an abnormal hazard because they involve the manufacture or handling of an explosive substance, as provided in Paragraph G of the National Defense Projects Rating Plan, to amend the National Defense Projects Rating Plan Endorsement to provide separate premium reimbursement of excess losses arising out of any one accident or occurrence involving one or more lines of insurance under the policies.

EXCESS LOSSES ENDORSEMENT—EXPLOSIVES PROJECTS

(Amending the National Defense Projects Rating Plan Endorsement attached to Policy Numbered { }¹⁾)

It is agreed that the National Defense Projects Rating Plan Endorsement made a part of the policy is amended as follows:

1. The premium formula in Section 1 of said Rating Plan Endorsement is amended to read as follows: "shall be (a) a fixed charge plus modified losses plus allocated claim expenses plus special assessments, all multiplied by the applicable tax multipliers, subject to the maximum premium, plus (b) an amount determined by multiplying the excess losses by the factor 1.12 and by multiplying such product by the applicable tax multipliers; each element computed as hereinafter provided:"
2. Paragraph (b) of Section 1 of said Rating Plan Endorsement is amended to read:
 "Losses Incurred" means the sum of all losses (indemnity and medical) actually paid, plus reserves for unpaid losses; provided that with respect to any one accident or occurrence involving one or more lines of insurance under the policies, "losses incurred" shall not include that part of the sum of such losses as is in excess of \$50,000, or in excess of \$25,000 if the earned standard premium is less than \$100,000 during the period covered by this endorsement.

3. "Excess Losses", as used herein, means the sum of all losses, (indemnity and medical) plus reserves for unpaid losses, not included in "losses incurred".
4. All losses due to a series of accidents or occurrences arising out of any one occurrence or event shall be deemed to arise out of a single accident or occurrence.
5. In the event the standard premium is less than \$100,000, the applicable Maximum Premium percentage in the Table of Rating Values shall be reduced by 20 percentage points. In the event the standard premium is \$100,000 or more the applicable Maximum Premium percentage shall be reduced by 10 percentage points.
6. As soon as practicable after an accident or occurrence involving excess losses, the company may compute the amount of such excess losses and shall furnish to the prime contractor and to the Government Agency involved an itemized statement thereof and shall make a preliminary computation of the premium due the company on account of such excess losses. The prime contractor shall promptly pay such premium to the company. At the time of each of the computations of premium provided for in Sections 4 and 5 of said Rating Plan Endorsement and in accordance with the procedure stated therein all excess losses and the premium resultant therefrom will be a part of each such computation and settlement, all in accordance with Section 1 of said endorsement as amended by this endorsement. That portion of the premium due the company on account of excess losses shall not be subject to any maximum.

Note: 1. Insert in brackets the Workmen's Compensation and Employers' Liability Policy Number.

ENDORSEMENT 7

PROJECT SITE MEDICAL ENDORSEMENT

It is agreed that "losses incurred", as defined in Section 1 (b) of the National Defense Projects Rating Plan Endorsement, shall include []% of the amount paid as salaries to "medical personnel" employed at the project site, provided however that such amount is subject to a maximum of []% of that portion of the Standard Premium applicable to Workmen's Compensation and Employers' Liability coverages.

"Medical personnel" as used in this endorsement shall include: doctors, internes, nurses, technicians, and if employed on a full time basis to perform services normally rendered by a nurse, orderlies and nurses' aides.

INSTRUCTIONS

Project Site Medical

1. Where medical treatment is afforded injured employees on the project site by the Employer a Project Site Medical Endorsement as shown above may be applied with respect to Workmen's Compensation and Employers' Liability policies issued under the National Defense Projects Rating Plan.
2. The percentage of the amount paid as salaries to "medical personnel" shall be fixed by negotiation among the carrier, the insured, and the Government Agency involved, and shall not exceed 66 $\frac{2}{3}$ % for construction projects, 50% for manufacturing projects or 33 $\frac{1}{3}$ % for explosives projects.
3. The maximum percentage of that portion of the Standard Premium applicable to Workmen's Compensation and Employers' Liability coverages referred to in the above endorsement shall be fixed by negotiation among the carrier, the insured and the Government Agency involved. Generally, these percentages should not exceed 7 $\frac{1}{2}$ % for construction projects, 10% for manufacturing projects or 5% for explosives projects but higher percentages may be agreed upon if justified.
4. The procedure outlined in the preceding paragraphs is applicable only where the project is solely a construction project, a manufacturing project or an explosives project. Ship building or ship repair projects shall be considered as construction projects.
5. If the project converts from a "construction project" to either a "manufacturing project" or an "explosives project", two endorsements will be required. The first, effective as of the effective date of the policies, will be the same as shown in the above endorsement except that the phrase "applicable to construction operations" will be

added at the end of the first paragraph. The second endorsement, effective as of the date of change of character of the project, will also be the same as in the above endorsement except that:

- (a) the percentage of salaries will be that applicable to the new operations, and
 - (b) the phrase "applicable to (insert 'manufacturing' or 'explosives') operations" will be added at the end of the first paragraph of the above endorsement.
6. If the project is at the same time in part a "construction project" and in part either a "manufacturing project" or an "explosives project" the endorsement to be used effective as of the date the project includes both operations, will be the same as the above endorsement except that:
- (a) the percentage inserted in the first bracket may be fixed, pro rata, on the basis of the payrolls for the combined operations, and
 - (b) the phrase "the sum of (1)% of that portion of the Standard Premium applicable to Workmen's Compensation and Employers' Liability coverages, applicable to construction operations and (2)% of that portion of the Standard Premium applicable to Workmen's Compensation and Employers' Liability coverages, applicable to operations" replaces the phrase ".% of that portion of the Standard Premium applicable to Workmen's Compensation and Employers' Liability Coverages."

ENDORSEMENT 8

ADDITIONAL MEDICAL COVERAGE ENDORSEMENT

[Amending Policy Numbered]¹

It is agreed that:

1. In addition to any payments which are required under Division (2) of Paragraph One (a) of the policy by the provisions of the applicable Workmen's Compensation or Occupational Disease Law, the Company will also pay the reasonable and proper cost of any additional medical, surgical, nurse or hospital services, medical or surgical apparatus or appliances and medicines which in the opinion of the Company may be reasonably necessary for the treatment of injuries sustained by any person who is entitled, on account of such injuries, to the benefits afforded under Division (2) of Paragraph One (a) or who is entitled to such benefits under other terms of the policy.
2. The Company's liability under this endorsement shall be limited to \$10,000 on account of each person for whom benefits are payable under Paragraph 1 of this endorsement.
- [3. This endorsement is issued in consideration of the payment by this Employer of a premium of 1% of the standard premium.]²
- [4. This endorsement applies only in the States of]³
[Minimum Premium \$]³

NOTES:

1. The Company may use its usual attachment clause.
2. The matter in brackets is to be omitted unless the endorsement applies in any one or more of the following states:
Arkansas, Florida, Indiana, Maine, Michigan, New Hampshire, New Mexico, Oklahoma and South Carolina.
3. List in this Paragraph those states designated in the following instructions in which this endorsement applies.

Instructions

This endorsement is to be used only if coverage is afforded in any one or more of the following states, the Workmen's Compensation or Occupational Disease Laws of which provide for limited medical benefits: Alabama, Arkansas, Colorado, Florida, Georgia, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Montana, New Hampshire, New Mexico, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont or Virginia.

In the event additional medical coverage is desired in Missouri, Pennsylvania or Texas the approved forms of endorsements applicable in such states are to be used.

ENDORSEMENT 9

WORKMEN'S COMPENSATION RENEWAL CERTIFICATE
(Blank Insurance Company)¹

Renewal of Policy No. Renewal Policy No.

In consideration of the payment of the premium provided for by the National Defense Projects Rating Plan Endorsement made a part of policy []², it is agreed that the policy []³ is renewed for the period stated below, subject to all its terms except as otherwise specified herein.

Name of Employer

Address

(No. street, town, county, state)

*Rate per \$100 of
Remuneration*

Classification of Operations

Policy Period: From to 12:01 a.m., standard time at the address of the Employer as stated herein.

Exception:

1. The deposit premium applicable to the expiring policy shall be transferred to this renewal.
2. There shall be no advance premium applicable to this renewal policy.

In witness whereof the Insurance Company has caused this certificate to be signed by its Vice President and Secretary and to be countersigned by a duly authorized agent of the Company.

Countersigned at on 195....

Vice President

By

Authorized Agent

Secretary

NOTES:

1. The name and location of the carrier are to be stated.
2. Insert in this space the number of the original Workmen's Compensation policy to which the Rating Plan Endorsement is attached.
3. Insert in this space the number of the Workmen's Compensation policy covering the preceding policy period.
4. The language of this paragraph is optional with the Company.

ENDORSEMENT 10

NATIONAL DEFENSE PROJECTS RATING PLAN ENDORSEMENT—
RENEWAL FORM

The premium for the policy is to be computed in accordance with the National Defense Projects Rating Plan Endorsement and any amendatory endorsement applicable thereto, forming a part of Policy No. []¹:

NOTE 1: Insert in this space the number of the original Workmen's Compensation policy to which the Rating Plan Endorsement is attached.

INSTRUCTIONS: This endorsement is to be used in the event the Workmen's Compensation insurance under the Plan is renewed annually through the issuance of renewal policies rather than through the issuance of Workmen's Compensation Renewal Certificates.

ENDORSEMENT 11
LIABILITY RENEWAL CERTIFICATE

[Blank Insurance Company]¹
[Blank Indemnity Company]

Renewal of Policy No. Renewal Policy No.

In consideration of the payment of the premium provided for by the National Defense Projects Rating Plan Endorsement made a part of policy [.....], it is agreed that the policy [.....]² is renewed for the period stated below, subject to all its terms except as otherwise specified herein.

Name of insured

Address

(No. street, town, county, state)

The description of hazards and the rates are as stated in the policy designated above except as stated herein:

.....
.....

Policy Period: From to 12:01 a.m., standard time at the address of the named insured as stated herein.

Exception:

- 1. The deposit premium applicable to the expiring policy shall be transferred to this renewal.

[In witness whereof the Insurance Company has caused this certificate to be signed by its Vice President and Secretary and to be countersigned by a duly authorized agent of the Company. Countersigned at on 195..... Vice President
By Secretary
Authorized Agent

NOTES:

- 1. The name and location of the carrier are to be stated.
- 2. Insert in this space the number of the original Workmen's Compensation policy to which the Rating Plan Endorsement is attached.
- 3. Insert in this space the number of the Liability or Automobile Policy covering the preceding policy period.
- 4. The language of this paragraph is optional with the Company.

ENDORSEMENT 12
HIRED CAR COVERAGE

[Amending Policy Numbered]¹

It is agreed that the policy is amended as follows:

- 1. The insurance for Bodily Injury Liability and for Property Damage Liability with respect to loss arising out of the maintenance or use of any hired automobile shall be excess insurance over any other valid and collectible insurance available to the insured, either as an insured under a policy applicable with respect to the automobile or otherwise.

Note: 1. The company may use its usual attachment clause.

Instructions: This endorsement is to be used with either the Comprehensive Automobile Liability policy or the Comprehensive General-Automobile Liability policy. In lieu of using this endorsement carriers may incorporate the provisions of this endorsement as an additional section in the General Endorsement for the Comprehensive Automobile Liability Policy or in the General Endorsement for Comprehensive General-Automobile Liability Policy. In the event the terms of this endorsement are incorporated in such General Endorsements care must be taken to be certain that the number alignment of the Sections of said endorsements is correspondingly amended, dependent upon the section number which is assigned to this matter.

APPENDIX C

ITEM I

PREMIUM CERTIFICATION

This is to certify that the above bill is correct and just; that payment therefor has not been received; that the amount of this bill represents insurance premiums computed in accordance with the National Defense Projects Rating Plan Endorsement attached to and made a part of the policy described therein; that the amount shown is the premium adjustment due at this time with respect to insurance afforded in connection with the prime contractor's obligations under the Government Contract No.

(Name of Company)

By [Signature] [Signature]

NOTE 1: Insert title of authorized Company representative.

ITEM II

NATIONAL DEFENSE PROJECTS RATING PLAN RELEASE

This release executed this day of, 195....., by the hereinafter referred to as the Company, (Insurance Company)

WITNESSETH:

WHEREAS, the Company entered into certain policies of insurance numbered and renewals thereof with the prime contractor with the United States of America under Government Contract No., and

WHEREAS, the premiums for such insurance policies are to be computed in accordance with the National Defense Projects Rating Plan Endorsement, which is made a part of such policies, and

WHEREAS, the contract between the United States of America and the prime contractor provides that the United States of America can settle any and all claims arising thereunder, including insurance premiums, and

WHEREAS, the said premiums have been computed in accordance with the aforementioned National Defense Projects Rating Plan Endorsement and agreed upon between the Company and the

(Officer of Government Agency Involved)

or his duly authorized representative;

Now, THEREFORE, in consideration of the sum of Dollars, the Company does by these presents, release, quitclaim and forever discharge the above named prime contractor and the United States of America from any and all premiums, or claims therefor, under the aforesaid insurance policies.

In Witness whereof the Company has caused its name to be signed and executed by its and its seal affixed and attested by

Title of Official Signing pursuant to a resolution of its Board of Directors.

Title of Official Attesting

ATTESTED:

(Name of Insurance Company)

(Signature)

(Title of Official Signing)

ITEM III

AGREEMENT REGARDING PREMIUM PAYMENTS UNDER NATIONAL DEFENSE PROJECTS RATING PLAN

(Assignment, Assumption of Premium Obligation)

It is agreed that % of the return premiums and premium refunds [and dividends] due or to become due the prime contractor under the policies to which the National Defense Projects Rating Plan Endorsement made a part of policy applies are hereby assigned to and shall be paid to the United States of America, and the prime contractor directs the Company to make such payments to the Treasurer of the United States acting for and on account of the United States of America.

The United States of America hereby assumes and agrees to fulfill all present and future obligations of the prime contractor with respect to the payment of % of the premiums under said policies.

This agreement, upon acceptance by the prime contractor, the United States of America and the Company shall be effective from

Accepted (date) [Name of Insurance Company]

By Title of Official Signing United States of America

Accepted (date)

By Authorized Representative

Accepted (date)

By Prime Contractor Authorized Representative

NOTE 1: Omit if non-participating carrier.

ITEM IV

REIMBURSEMENT AGREEMENT

This Agreement entered into this day of 195 , between of , herein referred to as Insurer A (Insert Name of Insurer A)

and of herein referred to as (Insert Name of Insurer B)

Insurer B:

WHEREAS:

Whereas, Insurer A has issued to of , (Name of Employer) (Address)

herein referred to as Employer, a Standard Workmen's Compensation and Employers' Liability Policy No. , which policy provides coverage for the liability of the Employer, under the [Workmen's Compensation Law and Occupational Disease Law]¹ of , including Employers' Liability insurance in connection with (State)

all operations of said Employer in the State of , exclusive of operations hereinafter described as being insured by Insurer B; and

WHEREAS, Insurer B has issued to Employer a Standard Workmen's Compensation and Employers' Liability Policy No. providing coverage for said Employer

under the [Workmen's Compensation Law and Occupational Disease Law of] the State of including Employers' Liability insurance, in connection with
(State)

the for
(Description of operations) (Name of principal for whom operations are to be performed and Location); and

WHEREAS, it is the desire of Insurer A to exclude from its policy of insurance or renewals hereof all operations as above defined, covered by Insurer B; and

WHEREAS, it is the desire of Insurer B to exclude from its policy of insurance or renewals thereof all operations as above defined, covered by Insurer A; and

WHEREAS, the premium for the policy or renewals thereof issued by Insurer A will be determined upon the application of the proper rates to the remuneration earned by employees of the Employer while engaged in operations in the State of
(State)

exclusive of the operations insured by Insurer B; and

WHEREAS, the premium for the policy or renewals thereof issued by Insurer B will be determined upon the application of the proper rates to the remuneration earned by employees of the Employer while engaged in operations in the State of
(State)

exclusive of the operations insured by Insurer A. Now therefore, it is agreed that Insurer A will investigate and defend, or pay, all claims in accordance with the terms of its policy as mentioned above or any renewals thereof, with respect to claims made by reason of the operations conducted by the Employer in the State of other
(State)

than with respect to the operations which are insured by Insurer B, and will indemnify and hold harmless Insurer B with respect to any such claims, including loss, cost or expense incurred in connection therewith.

It is further agreed that Insurer B will investigate and defend, or pay, all claims in accordance with the terms of its policy as mentioned above or any renewals thereof, with respect to claims made by reason of the operations conducted by the Employer in the State of and insured by Insurer B, and will indemnify and
(State)

hold harmless Insurer A with respect to any such claims, including loss, cost or expense incurred in connection therewith.

In the event of cancelation or termination of insurance under either of such policies or renewals thereof, notice thereof to the other insurer shall be mailed by the insurer whose insurance has been canceled or terminated, in the same manner and allowing the same number of days for cancelation to become effective as provided in such policy, and this Agreement shall terminate with respect to such canceled or terminated insurance as of the effective date that such insurance is canceled or terminated.

Witness: The Company
(Insurer A)

Witness: By
The Company
(Insurer B)

By

NOTE 1: Complete according to facts.

Instruction:

The blank spaces in this form are to be filled according to facts of each situation included.

APPENDIX D

Exhibit I

NATIONAL DEFENSE PROJECTS RATING PLAN

(Name of Carrier)

COMPUTATION OF EARNED PREMIUM

Policy Numbers _____

Name of Risk _____

Location of Operations _____

Policy Periods: from _____ to _____

Government Agency _____

Valuation Date _____

Government Contract Number _____

Item		(a) Compensation and Employers' Liability	(b) Automobile Bodily Injury and Property Damage	(c) General Liability	(d) Total (a)+(b)+(c)
1	Standard Premium				
2	Premium Base for Determination of Fixed Charges (1) x .90				
3	Fixed Charge. Fixed Charge Percentage x (2)				
4	Incurred Losses				
5	Modified Losses (4) x 1.12				
6	Allocated Claim Expenses				
7	Special Assessments				
8	Total (3)+(5)+(6)+(7)				
9	Tax Multiplier				X X X X X
10	Indicated Premium (8) x (9)				
11	Maximum Premium Maximum Premium Percentage x [(d)]				
12	Applicable Premium (10) or (11) whichever is less in Total (Col. d)				
13	Premium Previously Billed Item (d) from Exhibit 1A				
14	Additional Premium due and now payable (12)-(13) Return (13)-(12)				

NATIONAL DEFENSE PROJECTS RATING PLAN

Exhibit II

(Name of Carrier)

SUMMARY—REPORT OF LOSSES INCURRED

Name of Risk _____

Location of Operations _____

Government Agency _____

Government Contract Number _____

Policy Periods from _____ to _____

Valuation Date _____

Line of Insurance and Policy Numbers (1)	Type of Claims (2)	Number of Claims (3)	LOSSES INCURRED				Total Losses and Expenses (6)+(7) (8)
			Compensation or Liability (4)	Medical (5)	Total Losses (4)+(5) (6)	Allocated Expenses (7)	
WORKMEN'S COMPENSATION	Open Cases						
	Closed Cases						
	Contract Medical		X X X X				
	Total—Workmen's Compensation						
AUTOMOBILE	Open Cases			X X X X			
	Closed Cases			X X X X			
	Total—Automobile			X X X X			
GENERAL LIABILITY	Open Cases			X X X X			
	Closed Cases			X X X X			
	Total—General Liability			X X X X			
TOTAL—ALL LINES							

NDPRP—II

NATIONAL DEFENSE PROJECTS RATING PLAN

Exhibit III Page _____

(Name of Carrier)

ITEMIZED STATEMENT OF WORKMEN'S COMPENSATION AND EMPLOYERS' LIABILITY LOSSES INCURRED

Closed Open

Name of Risk _____

Location of Operation _____

Government Contract Number _____

Policy Number _____ Valuation Date _____ Policy Periods: from _____ to _____

Carrier's Claim No. (1)	Name of Injured or Claimant (2)	Date of Accident (3)	LOSSES INCURRED				Total (4)+(5)+(6) (7)		
			Compensation (4)	Medical (5)	Allocated Expense (6)				
		Totals							

NATIONAL DEFENSE PROJECTS RATING PLAN

(Name of Carrier)

ITEMIZED STATEMENT OF LOSSES INCURRED

AUTOMOBILE Closed Open GENERAL LIABILITY Closed Open

Name of Risk _____
 Location of Operations _____
 Government Agency _____
 Policy Number _____ Valuation Date _____ Policy Periods: from _____ to _____

Carrier's Claim No.	Name of Injured or Claimant	Date of Accident	LOSSES INCURRED			
			Bodily Injury (4)	Property Damage (5)	Allocated Expense (6)	Total (4)+(5)+(6) (7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Totals						

Exhibit V

NATIONAL DEFENSE PROJECTS RATING PLAN
INDIVIDUAL REPORT—OPEN LOSS
WORKMEN'S COMPENSATION AND EMPLOYERS' LIABILITY

(Name of Carrier)

CLAIMANT	GOVERNMENT CONTRACT NUMBER
CLAIM NO.	POLICY NUMBER
ACCIDENT DATE	VALUATION DATE
FATAL CASE <input type="checkbox"/>	HAVE PAYMENTS BEEN STARTED Yes <input type="checkbox"/> No <input type="checkbox"/>
INDEMNITY INCURRED <input type="checkbox"/>	
MEDICAL INCURRED	
ALLOCATED EXPENSE INCURRED	
TOTAL	

DESCRIPTION OF ACCIDENT AND INJURY OR DAMAGE

FOR USE BY GOVERNMENT AGENCY

NDPRP—V

**NATIONAL DEFENSE PROJECTS RATING PLAN
INDIVIDUAL REPORT—OPEN LOSS**

(Name of Carrier)

AUTOMOBILE
GENERAL LIABILITY
CASE IN LITIGATION Yes No

CLAIMANT	GOVERNMENT CONTRACT NUMBER
CLAIM NO.	POLICY NUMBER
ACCIDENT DATE	VALUATION DATE
BODILY INJURY INCURRED LOSS	
PROPERTY DAMAGE INCURRED LOSS	
ALLOCATED EXPENSE INCURRED	
TOTAL	

DESCRIPTION OF ACCIDENT AND INJURY OR DAMAGE

FOR USE BY GOVERNMENT AGENCY

NATIONAL DEFENSE PROJECTS RATING PLAN

INTERIM REPORT OF LOSSES INCURRED

Name of Carrier _____

Name of Policyholder _____

Period Covered by Report _____ to _____

Location of Operation _____

Government Agency _____

Government Contract Number _____

Line of Insurance and Policy Numbers	(1)	(2)	(3)	(4)	(5)	(6)
	Number of Claims	Incurred Indemnity Losses	Incurred Medical Losses*	Total Incurred Losses	Allocated Claims Expense	Total (4)+(5)
WORKMEN'S COMPENSATION (a)						
AUTOMOBILE (b)		X X X X	X X X X			
GENERAL LIABILITY (c)		X X X X	X X X X			
TOTAL ALL LINES (a)+(b)+(c)		X X X X	X X X X			

*Includes contract medical of \$

(e) Estimated Standard Premium _____
(100% basis)

(f) Loss Ratio $\frac{(d)}{e}$ _____

APPENDIX E

DEFENSE DEPARTMENT
INSURANCE SERVICE AGREEMENT
(Revised January 19, 1951)

Proposed by:

- National Association of Insurance Agents
- National Association of Insurance Brokers
- National Association of Casualty & Surety Agents

1.
 (Name of Advisor)
 an individual, a partnership, a corporation organized and existing under the laws of

 (strike out inapplicable designation and/or add appropriate designation) of

(Address of Advisor)
 hereinafter called the "Advisor", agree(s), in consideration of a fee to be determined
 in the manner hereinafter set forth, to render complete insurance advisory service to
 of

(Name of Contractor) (Address of Contractor)
 contractor with the United States of America under Contract No.
 hereinafter called the "Contractor", on all insurance procured under the Defense Department
 Insurance Rating Plan with respect to the construction or operation (or both, as the
 case may be) of, located at or near,
 from the effective date of this agreement continuously until approval of final premium
 audit and of all premiums for such insurance has been made.

2. The Advisor agrees that he will:
- a. Upon request, assist the Contractor in the selection of an insurance carrier;
 - b. Procure insurance binders and policies and examine to determine that they are correctly written and that the required coverages are provided;
 - c. Assist the Contractor in establishing proper procedure and records for determining payroll classifications and for other units of exposure upon which insurance premiums are based;
 - d. Review and approve all insurance audit statements and premium invoices as to rates and premium extensions;
 - e. Visit the project or location of operations as required by the Contractor or deemed advisable by the Advisor to determine that insurance matter under the Defense Rating Plan are being properly handled;
 - f. Render any other assistance relating to insurance written under the Defense Department Rating Plan which the Contractor may require;
 - g. Submit to the Contractor a detailed report of findings and of services performed, during each quarter, and such special reports as may be necessary, and
 - h. Forward to the Contracting Officer the prescribed insurance assignment agreement or agreements executed by the Contractor.

3. The Contractor agrees to pay the Advisor a fee for his services, the amount of which shall be determined by applying the applicable percentages set forth in Column B below to the standard premium accruing during the period of this agreement on policies issued to the Contractor under the Defense Department Insurance Rating Plan. "Standard Premium" as used herein shall mean the premium for such policies computed on the basis of the manual rules and rates approved by the Defense Department for use in connection with the policies issued to the Contractor under the Defense Department Insurance Rating Plan.

FEE SCHEDULE ON INSURANCE SERVICE AGREEMENT

A	B	C	D	E
<i>Standard Premium</i>	(block system)	90%	<i>Cumulative</i>	
Ist. 10,000	at 7½%	675	(10,000)	675
Next 40,000	at 4%	1440	(50,000)	2115
Next 50,000	at 2%	900	(100,000)	3015
Next 150,000	at 1%	1350	(250,000)	4365
Next 750,000	at ½%	3375	(1,000,000)	7740
Next 1,000,000		4500	(2,000,000)	12240
Next 1,000,000	at ¼%	2250	(3,000,000)	14490
Next 1,000,000		2250	(4,000,000)	16740

4. The Advisor shall submit quarterly a statement of the aggregate earned standard premium and the aggregate earned Advisor's fee, less the amount of all fees previously earned. If, however, this agreement supersedes a previous insurance service agreement or agreements, the Advisor shall submit quarterly a statement of (a) the aggregate standard premium earned during the term of all agreements; (b) the aggregate standard premium earned during the term of all previous agreements; and (c) the fee earned during the term of this agreement less all fees previously earned under this agreement. The fee earned under this agreement shall be computed by applying the basis of computation as set forth in this agreement to the aggregate standard premium earned during the term of all agreements, and deducting from the total fee thus computed, the portion thereof applicable to the aggregate standard premium earned during the term of all previous agreements. Upon approval by the Contractor of each such quarterly statement, the Advisor shall be paid the earned fee. A final statement shall be submitted by the Advisor upon receipt of final audit statements from the insurance carrier and final settlement of the Advisor's fee shall be made as soon as practicable thereafter.

5. The Advisor agrees that he will neither accept employment by nor any remuneration directly or indirectly from the insurance carrier for services rendered in connection with the insurance written under the Defense Department Insurance Rating Plan covering operations under the contract referred to in paragraph 1 hereof.

6. This agreement may be terminated by either of the parties hereto upon notice in writing mailed to the other party stating when, not less than ten days thereafter, such termination shall be effective. Delivery of such notice shall be equivalent to mailing. In the event of termination a copy of such notice shall be immediately mailed to

.....
 (Contracting Officer)

 (Address)

If this Agreement is terminated as herein provided, the Advisor's fee shall be computed in the manner provided herein on the standard premium accrued to the effective date of termination.

This Agreement, executed this day of, 19...., shall be effective and binding on the undersigned from and after

ATTEST:

 (Insurance Advisor)

 By

 Title
 Title

 (Affix Corporate Seal)

WITNESSES As to Advisor:

.....
 (Name) (Address)

 (Name) (Address)

ATTEST

.....
(Contractor)

.....

By

Title
(Affix Corporate Seal)

Title

WITNESSES as to Contractor:

.....
(Name) (Address)

.....
(Name) (Address)

APPROVED:

.....

.....
(Contracting Officer)

NOTE: If a corporation, signature should be attested by a corporate officer and corporate seal affixed. In all other cases two witnesses are required.

INSURANCE ADVISOR'S QUARTERLY STATEMENT OF EARNED FEE

Advisor
 Address

Date

Contractor Contract No.
 Project Location
 Insurance Carrier
 Policy Period: From To
 Effective Date of Insurance Service Agreement

Period	to	<i>Aggregate Earned Standard Premium</i>
Workmen's Compensation and O.D. Policy		\$
Comprehensive Public Liability Policy		\$
Comprehensive Auto Liability Policy		\$
Total		\$

COMPUTATION ON ADVISOR'S FEE

(The Insurance Advisor's Quarterly Report of Services Rendered should follow the following topical outline and should be complete, clear and concise.)

INSURANCE ADVISOR'S QUARTERLY REPORT OF SERVICES RENDERED

Period to

1. *Insurance Placed and Policies Procured*
2. *Policies, Binders, Endorsements, etc., Examined—Conditions Found and Action Taken*
3. *Rating Procedures and Records Established*
4. *Audit Statements and Premium Invoices Reviewed—Conditions Found and Action Taken*
5. *Other Data Procured from Carriers—Comments*
6. *Visits to Projects*
 - (a) Date
 - (b) Report of Safety Engineering Service and Facilities
 - (c) Report of Claim Service and Facilities
 - (d) Report of Hospital and Medical Service and Facilities
 - (e) Other visits—Date, Purpose and Results
7. *Other Services Rendered*
8. *Recommendations: (List and be Specific)*

.....
 (Insurance Advisor)
 By
 Title

DISCUSSIONS OF PAPER READ AT THE MAY 1951 MEETING

RATE REGULATION AND THE CASUALTY ACTUARY

THOMAS O. CARLSON

Volume XXXVIII, Part I, Page 9

WRITTEN DISCUSSION BY H. J. GINSBURGH

In the course of his paper, Mr. Carlson has taken care to explain that his own experience and background might tend to produce some particular emphasis of viewpoint in his treatment of his subject. "At the same time" he writes "I have striven for an impartial understanding of the problems of all parties". And in this he has succeeded admirably, in a paper of great scope, presented in a manner to excite interest and to provoke thought. When I venture to raise an issue it is not because of Mr. Carlson's failure to recognize problems and to deal with them impartially. It is rather because of what he calls "a fundamental split in social philosophy". Perhaps a few sentences will help to explain what raises the issue.

It is obvious, or should be so, that the regulatory statutes are not meant to protect or benefit the insurance business, or any segment of it, for its own sake. The requirement for rate adequacy is designed for the ultimate protection of the policyholder, not for the immediate benefit of the stockholders. Even the specific provision for inclusion of profit as an element in insurance price fixing can be said to be a recognition of the necessity of maintaining and attracting insurance capacity to meet the needs of our economy. The basic criteria for rates set by the statute must therefore be interpreted and applied in the light of their ultimate effect on the policyholder. Certainly we must maintain the truth of this principle with respect to application of the criterion of rate adequacy, when regulatory authorities seem to be concerned only with the immediate impact on the insuring public. And we should stand by this principle in our view of that criterion which is a continuing one in the application of rates deemed neither excessive nor inadequate, namely the criterion that rates shall not be unfairly discriminatory.

The treatment of the concept of "flexibility", given considerable prominence in Mr. Carlson's paper, arouses some doubt as to whether the avoidance of unfair discrimination is to be given the same degree of actuarial consideration as the other two of the three basic rate-making criteria. Or is the actuary to turn his gaze aside and absolve himself from responsibility? One can only applaud Mr. Carlson's description of the role of actuarial science in its application to present problems in rate-making and his refutation of the idea of its "exactness". As he intimates, competent and responsible actuaries do not claim omniscience or clairvoyance, nor do they claim for their techniques the capability of exact prophecy. Surely there is such a thing as actuarial judgment, just as there is underwriting judgment. Flexibility in approach to the establishment of rating systems or even rating plans is necessary and entirely desirable. But once established, how flexible shall be the application of these systems and plans? This is the issue. Are plans designed to produce prospective rates from actual past experience to be used, or partially used, or not used at all, completely at option, as the competitive demands of the moment dictate? Will the actuary be able to demonstrate consistency in the principles and

practices applied, in order to prove the discrimination between risks to be fair? Or, losing faith in the ability of his techniques to produce a basis for consistency of appraisal, will he design his rating procedures so that in any given instance of application he may abdicate in favor of "underwriting judgment", relieving himself of responsibility in the meeting of the basic rating criteria of the regulatory statutes?

There can be little if any dispute with Mr. Carlson's statement that "all rate-making procedures represent some compromise between the practicable and the theoretical ideal". In a discussion which seems otherwise to hold the balance so well as his does, the frequent reference to "flexibility" seems to say: "This is all very well, but when we get down to actual operation let us throw the compromise overboard and embrace what seems to be purely practical." This may well be a mistaken inference. Its correction would be welcomed. In the whole rate-making procedure the introduction of flexibility at some points is necessary and desirable, but at others it may be taken to afford a means of negating the principles and aims of the regulatory statutes. For the latter impression to be given would be unfortunate for all, since, as Mr. Carlson points out: "Regulation is with us, to stay."

WRITTEN DISCUSSION JOHN A. RESONY

*"Tomorrow's fate, though thou be wise,
Thou cans't not tell, nor yet surmise"*
(Omar Khayyam)

The first two sections of Mr. Carlson's excellent paper give a concise review of the development of the regulation of casualty insurance rates. Of particular interest is the summarization of the various state laws pertaining to ratemaking. The lack of uniformity in the various laws is strikingly brought out in Appendix A wherein are listed some 150 deviations from the basic all-industry law. These sections are of considerable value to younger members and students of the Society.

As pointed out, in these and following sections of the paper two perplexing problems involved in the administration of these laws are: 1. the meanings of the three criteria for rates (i.e. adequate, not excessive, not unfairly discriminatory) and 2. the question of what supporting information is required to judge whether the rates filed meet these criteria. The problems are of course inseparably interrelated. Generally there are three types of situation to be met: 1. a bureau filing, 2. a bureau member or subscriber filing for a uniform deviation from bureau rates or an independent company filing a bureau manual and rates with or without a uniform change from bureau rates and 3. an independent company filing its own manual and rates. In a state where the bureau members and subscribers write the majority of the business the filing approved for the bureau sets the basic level of rates; the filers in groups (2) and (3) above more or less keying their filings to the bureau filings. Therefore it is essential that most careful consideration be given to the bureau filing both as respects overall rate level and the changes in rates for the various classes and territories involved. There is generally enough experience available, which when considered with other factors involved, enable one to feel with some confidence that at least for the major classes rates have been produced which are within a "zone of reasonableness". Perhaps it should be said they

appear reasonable at the time produced; more often than not the losses actually incurred on business written at the new rates will be quite different from the loss provisions in the rates. This is to be expected under any prospective system of ratemaking; it would be indeed remarkable if for any one state in any one policy year the experience in any line should develop by classification as "expected" in the rates. In any event if and when a bureau filing is approved by a supervisory official it is presumed to be within the "zone of reasonableness". As a practical matter it amounts to the upper limit of this zone.

Once this limit is established the supervisory official is faced with the problems of determining whether deviations should be approved. There is little difficulty when the application for deviation is based upon difference in expense provisions. With uniform accounting and the filing of the Expense Exhibit in the Annual Statement fairly credible expense data is available as respects the deviating company which can be compared with the expense provisions in the rate. Also differences in company operating procedures such as acquisition procedures are known and in some cases the effect on expense ratios can be approximated. The difficult cases are deviations based on favorable underwriting results presumably due to selective underwriting. Our old friend credibility again must be considered. The problem is what credence can be given to the limited experience of one company in one state or even countrywide. The same problems as described above for companies filing deviations are met in the case of independent filing companies filing a bureau manual and rates with a uniform change from the bureau rates. Companies filing a manual of rules and rates involving different classification systems than the bureau present an even more difficult problem. The total company experience in the state is sometimes sufficient to judge overall changes in rate level, but when the experience is broken down to territory and classification it is seldom sufficient to have much credibility. Countrywide figures are of help in some cases.

It is my feeling that the most important provisions in the rate regulatory statutes are those with regard to supporting information for rate filings. The provisions read as follows:

"The information furnished in support of a filing may include 1. the experience or judgment of the insurer or rating organization making the filing, 2. its interpretation of any statistical data it relies upon, 3. the experience of other insurers or rating organizations, or 4. any other relevant factors."

Thus it is seen that anything that appears to be relevant may be submitted in support of a filing; any one of the items listed above may be submitted but not any particular one is required to be submitted. However no matter in what form a filing is substantiated, be it based on purely underwriting considerations or on a rigorous mathematical formula, the element of judgment exists. This is clearly so in the case of underwriting considerations; in the case of mathematical formulae it is implicit in the filing that it is the judgment of the filer that such formulae should be used. It would appear therefore that where the judgment of the supervisory authority differs with that of the filer this would be sufficient to controvert the filing providing the action

was neither arbitrary nor capricious. Thus although the supervisory official does not have the authority to make rates any filing which in *his judgment* does not meet the statutory requirements may be, indeed must be, disapproved.

By this I do not mean to imply that the element of judgment should be eliminated from rate filings, on the contrary I believe that one of the major faults of many rate filings has been slavish adherence to the policy year experience. It always seemed a bit ridiculous to me that rate level changes, rates, rating factors, etc. should be precisely calculated to three decimal places in accordance with an established ratemaking system when the ratemaking system itself doesn't justify any such treatment. Doing so implies an exactitude in the ratemaking which does not exist. This is especially apparent when developments subsequent to the experience period used indicate significant changes in experience.

It would appear that the following principles should be recognized:

1. It is not possible to produce rates which will be exactly appropriate for any future period.
2. Past experience is the most reasonable guide for ratemaking; the older the experience the less value it has for these purposes.
3. Trend factors based on calendar year figures or preferably average loss costs and claim frequencies per unit exposure are of value. The judgment element is of great importance in the use of such factors and the procedures used should not be formalized.
4. There is always possibility of honest differences of opinion in rate filings based to a great extent on judgment factors. Prior consultation with supervisory officials before use of such factors is advisable.

WRITTEN DISCUSSION BY DUDLEY M. PRUITT

We are indebted to Mr. Carlson for presenting us not only with a comprehensive record of the history of rate regulation in this country, but also with a very readable paper. There is probably no one in the industry so well qualified as he is by training and experience and by the native gift of understanding to report on and to discuss this confused and complex chapter in insurance history. We should be thankful that the job was done, and doubly thankful that Tom Carlson, and not some other, did it.

Much that he says is, of course, historical and not subject to dispute, but fortunately for our pleasure and to give the reviewer ammunition Mr. Carlson has indulged at times in comment and conjecture, delightfully expressed though frequently controversial, and has even at times conceded a bow to the opposition. One can hardly do credit in a brief review to the broad scope of this paper. I shall therefore devote most of my attention to underscoring, for emphasis, certain of the author's expressions of opinion with which I find myself in particular agreement and to registering protest against other expressions with which I find myself in violent disagreement. A certain charm about the paper comes from the happy selection of literary quotations at the chapter headings. Or, as Samuel Butler put it, the author

*"Cheer'd up himself with ends of verse
And sayings of philosophers."*

The reader will pardon me if I proceed to use, or abuse, this technique, but not for the same reason. I find myself to be one of those who, for want of more original material,

“. . . lard their lean books with the fat of others' works.”

—Robert Burton

ACTUARIAL EXACTNESS

“A Hair perhaps divides the False and True.”

—Omar Khayyam

Worthy of emphatic underscoring is all that which Mr. Carlson has said about the phantom of “actuarial exactness.” We have, perhaps, done too thorough a job in convincing the layman that our profession is a science, which, of course, it is in the broadest sense of the term. Modern man, however, is conditioned to think of science as SCIENCE, worshipping the exactness of tolerances that makes it possible both to split an atom and then to weigh the resultant parts. It is our own fault if the public has the impression of us that we

*“. . . could distinguish and divide
A hair 'twixt south and southwest side.”*

—Samuel Butler

Perhaps we should admit first to ourselves and then to our public, with appropriate advertising, that our profession is basically an art.

REPORTED STATISTICS OF INDEPENDENTS

“Many shall run to and fro, and knowledge shall be increased.”

—The Book of Daniel

Mr. Carlson discusses at some length the question of whether or not independent carriers should be required to maintain statistics in as complete detail as do Bureau companies even beyond their need for such data as information supporting rate filings. His conclusion that they should is based primarily on the claim that to do otherwise “would void that objective of the regulating laws which would permit establishment of rates upon a broad spread of experience,” because carriers might find it too burdensome to act in concert and might become independent in self defense. Clearly here he is not thinking of the use of the independents' experience in aiding the common establishment of rates; as a matter of fact in the concluding section of his paper he brings out very strongly the arguments against any such practice. It must follow, therefore, that he is thinking of the maintenance of statistics by independent carriers not so much as a useful pursuit *per se* but rather as a kind of sporting handicap designed to keep the overburdened Bureau carriers in the game.

*“Like Aesop's fox, when he had lost his tail, would
have all his fellow foxes cut off theirs.”*

—Robert Burton

In his own words, however, this objective of the regulatory laws would *permit*, not *require*, establishment of rates upon a broad spread of experience. It hardly follows that any situation which might make this permissive feature burdensome would *void* its permissiveness. Mr. Carlson also chooses to ignore the fact that this "burden" of rate making in concert voluntarily assumed by the Bureau carriers is accompanied by the privilege of reducing competition. Among the independents there is something less than complete accord with the doctrine that the non-independents are being actuated by motives solely of sweetness and light. Before the current developments in regulation these Bureau carriers bore the unequal burden, one cannot say without murmuring, but certainly without withdrawing *en masse* from the Bureau.

THE INDEPENDENTS AND THOSE BUREAU COAT TAILS

*"A dwarf sees further than the giant when he
has the giant's shoulders to mount on."*

—Coleridge

Mr. Carlson has credited some maverick spokesmen for the independent carriers with the admission that they are riding on the coat-tails of the rating organizations. He fails to bring out the very essential service the independents render both the insuring public and these same rating organizations. The metaphor of the coat-tails might well be abandoned in favor of the simile of the pilot fish.

*"The pilot fish is a small cigar-shaped fish with zebra stripes,
which swims rapidly in a shoal ahead of the shark's snout.
It received its name because it was thought that it piloted its
half-blind friend the shark about in the sea."*

—Thor Heyerdahl, —*Kon-Tiki*

A very strong case can and should be made for the service the independents perform in experimenting in new forms of coverage and in new techniques. Such experimentation, possible to a footloose independent is frequently out of the question for rating organizations because of their size and the essential rigidity of their natures. It cannot be denied that many valuable advances in the industry have been piloted originally by independent carriers.

A second and not inconsequential service rendered by the independents to the rating organizations is in providing the legally essential element of free competition. As was noted earlier the privilege of acting in concert is essentially the privilege of reducing competition. It is also an elementary thesis of the American economy that the natural regulation through competition is to be preferred to state regulation, but that to the degree in which natural competition is reduced state regulation must fill the vacuum. Had there been an adequate degree of independent competition in the area involved in the S.E.U.A. case, it is possible that the case might never have developed and the current intensified era of rate regulation never moved in upon us. If, as is *not* admitted, the independents really are riding on the coat-tails of the rating organizations, they should be more than welcome, for they are providing comfort and protection to the wearer of the coat.

We cannot, of course, accept the base canard implied in the passage in *Kon-Tiki* which follows the one quoted above. This goes thus:

"In reality, it (the pilot fish) simply goes along with the shark, and, if it acts independently, it is only because it catches sight of food within its own range of vision."

STATISTICAL COMBINABILITY

*"Fillet of a fenny snake,
In the cauldron boil and bake,
Eye of newt and toe of frog,
Wool of bat and tongue of dog,
Adder's fork and blind worm's sting,
Lizard's leg and howlet's wing."*

—Shakespeare

Greater emphasis should be placed upon the inappropriateness of combining the experience of all carriers. Mr. Carlson has pointed out that "it is not reasonable to combine the experience when classification, territory, or coverage definitions differ from company to company." Further than that, formal definitions may even be identical, but the resultant combination still produce an unholy witches' brew. Classification definitions must naturally comprehend very wide bands of accident proneness among insureds. Frequently no refinement in words can actually be found to break such broad bands into narrower ones. Yet carriers do, through varying methods of operation and varying sources of production, narrow these bands. The process is some times known as "skimming the cream." Cream and milk and even water may be homogenized together to be sure, but the resultant fluid is poor stuff to put in your coffee.

This demand for combination reflects the views of many insurance department officials who seek, not unnaturally, yardsticks for their guidance in approval of rate filings, and harbor the forlorn hope that, through the combining of all statistics of all carriers, statewide pure premium tables may be constructed as the guide for *all* rate filings, to be used in much the same way that the mortality table is used in life insurance rate making. The Industry should lose no opportunity to impress upon supervisory officials that this is indeed a forlorn hope.

SUPPORTING INFORMATION

*"And if you take one from three hundred and sixty-five,
what remains?"
'Three hundred and sixty-four, of course.'
Humpty Dumpty looked doubtful. 'I'd rather see that
done on paper', he said."*

—Lewis Carroll

In this reviewer's opinion Mr. Carlson, although treating with the question of supporting information in some detail, has not brought out with the emphasis it deserves the wasted effort and the actuarial non sequiturs demanded of the carriers in the supplying of information in support of rate filings. Inde-

pendent carriers, naturally, suffer in this regard to a greater extent than rating organizations, because in most cases the experience of an individual independent carrier is far too thin alone for the establishment of a rate. There is a tendency, on the part of regulatory officials, to expect the data of the single carrier in the single state to support any rate filing regardless of its nature. Frequently the conclusion must be drawn that the demands of the officials are not dictated so much by a wish for the truth as by the very human desire to have a file—some file—in “support” of an official approval. Thus a premium is placed on prolixity, and actuarial truth is buried under a ton of paper.

RETROSPECTIVE RATING PLAN D

“The question is not yet settled, whether madness is or is not the loftiest intelligence—whether much that is glorious—whether all that is profound—does not spring from disease of thought—from moods of mind exalted at the expense of the general intellect.”

—E. A. Poe

Perhaps there has never been another act that has so thoroughly confirmed the long standing popular impression of an actuary as the introduction of Plan D. We will all agree with Mr. Carlson that “this reaction is the result of mental lassitude on the part of individuals who have not even tried to understand what is fundamentally a plan far less formidable than it appears.” But that is precisely the point. The public has always suspected us of making the simple complicated. Now they know it. It hardly helps matters to reply that the public is mentally lazy. Before the introduction of Plan D signs were springing up that the casualty actuary was, if not understood, at least beginning to be tolerated; some were being installed as vice-presidents of their companies; one was even made the president of his local school board. But now we are back where we began. Plato put the public attitude neatly when he said,

“I have hardly ever known a mathematician who was capable of reasoning.”

GENERAL COMMENTS

*“He knew what’s what, and that’s as high
As metaphysic wit can fly.”*

—Samuel Butler

There are many other points worthy of comment in this paper, so many in fact that I can only mention a few.

As one who made the circuit with the Industry Committee on Allocated Loss Expense I express my warm appreciation for the very adequate and fair treatment Mr. Carlson has given that subject.

There are several excellent passages regarding the need for the maintenance of flexibility in the rate making procedure and the value of informed judgment. I found myself voicing a resounding Methodist “Amen” to such expressions. We who play with formulas have been imprisoned by formulas, and too often we do not realize how much of our freedom we have lost. We find ourselves uncomfortable, even apologetic, when it is proposed that a subject be exposed

to the free light and air of informed judgment. Let us make no more apologies, let us boldly admit that judgment is one of man's great geniuses and that flexibility is judgment's handmaiden. Will someone please write a paper on this?

Mr. Carlson's final look into the future at the end of the paper is both splendidly enlightened and prophetic. All students of the business should read it carefully and take note. We have been fortunate indeed that the "accident" of his employment, as the author puts it, has provided the industry in these recent crucial years of regulation with so worthy a protagonist. May we pray that no second accident cheat us of his services in the still more crucial years to come.

Happily there is a passage in the world's literature which in its prophetic vision seems to give assurance that the National Bureau will be blessed with its Actuary for yet some years to come—a picture not yet quite achieved, yet so like to the present that the breath of life is in it, a picture drawn a hundred years ago.

*"Then the magician solemnly 'gan to frown,
So that his frost-white eye brows, beetling low,
Shaded his deep green eyes, and wrinkles brown,
Plaited upon his furnace-scorched brow."*

—John Keats

WRITTEN DISCUSSION* BY R. W. GRIFFITH

It is indeed a privilege to have the opportunity to present before the Society a critique of Mr. Carlson's very capable and admirable paper entitled, "Rate Regulation and the Casualty Actuary." There can be no question but that he has presented a substantially exhaustive and authoritative review of the history and background of the regulation of casualty rates. I consider it a splendid opportunity to present before this group of men who are instrumental in making rate regulation work, a few of the viewpoints and problems of independent carriers.

In his opening statements, Mr. Carlson emphasizes that his remarks are restricted to the liability, burglary and boiler lines in the casualty field, with emphasis on the viewpoint of a rating organization representative. My comments on Mr. Carlson's very fine paper will be confined to the major line of insurance written by member companies of the National Association of Independent Insurers: i.e., automobile liability and physical damage. The concentration of writings of these companies is in the midwest. As of the end of 1950, they totalled some 167 companies with most of them having relatively small volumes of premiums. As a matter of fact, 66 of these companies had countrywide casualty premiums in 1950 of less than one-half million dollars, and 93 of the companies had countrywide premiums of less than a million dollars. Only 19 of the member companies had countrywide, casualty premiums in excess of five million dollars a year.

It is important to recognize that the advent of rate regulation, countrywide, in one form or another has had a much greater impact on the independent carriers than on the organization companies. Mr. Carlson has touched on this

*By invitation

in his comments on the viewpoints of some independent carriers during the formative stages of all-industry legislation, and in his comments on statistical plans. It must be remembered that the great bulk of the independent companies are relatively small; that never before did they have to consider more than ordinary logic and competition in the establishment of rate levels; that statistical data to support rate levels was practically non-existent; that even the most simple rate-making principles were unknown; and that only a few had progressed far enough to have a Casualty Actuary either in name or in function. It is amazing that they have progressed as far as they have in the few short years since the enactment of rate regulatory laws.

If we have *any* quarrel with Mr. Carlson's presentation, it lies largely within his discussion of supporting information for rate filings and his interpretation of the regulatory provisions calling for annual reporting of statistical data to supervisory officials. Let me say at the outset that we are duly appreciative of the laudatory comments which Mr. Carlson makes in connection with his discussion of the N.A.I.I. Statistical Plans. The Automobile Plan was designed to fit the needs of the majority of member companies who in the main were writing full coverage automobile insurance. This factor is the one largely responsible for the development of a statistical plan that would accommodate both liability and physical damage coverages. I might add that we are much encouraged by the present cooperative effort among the rating organizations handling auto liability and physical damage coverages. We hope that these efforts will be successful in the not-too-distant future in the ironing out of existent differences in rules, territorial definitions and coding. I say this because these differences are troublesome to those independent companies who use rating bureau manuals, and in some cases, bureau coding. I would assume that these same differences present problems to any full coverage automobile insurer, whether organization or independent.

SUPPORTING INFORMATION

The subject of supporting information for rate filings has been a troublesome one for independent carriers. It is readily acknowledged that the great percentage of independent carriers, numerically, do file rating bureau manuals with perhaps a provision for writing at 10 or 15% off manual. This is a hold-over from the pre-regulation days when for years these companies had been using bureau manuals with a small deviation and produced reasonable underwriting gains consistently. Since their volumes of business within the individual states had little or no credibility, they were in no position to support a bureau rate level with their own limited statistics. It was quite logical that they continue to write insurance on the same basis as in the past and to support their rate filings of bureau manuals with the supporting data that had been filed by the rating organizations. This is the primary reason for the so-called "Moser Amendment" which provided in part that, "the experience of other insurers or rating organizations" may be used in support of a filing. I know of no single independent company predicating its filings on bureau manuals, however, that produces more premium within an individual state than that produced by an automobile rating organization within the same state.

It is, however, quite true that the independent companies as a group do have more premium volume in a number of states than do the bureau com-

panies. As consolidated statistics of the independent carriers becomes available for two or more policy years, we anticipate that there will be an increasing tendency to use such statistical data for at least partial supporting information on rate filings.

Mr. Carlson is of course right when he says that no cut and dried generalizations should prevail in any consideration of the subject of supporting information. Supervisory authorities have exhibited considerable interest in the types of supporting information used by both rating organizations and independent carriers. In the great majority of cases, the experience data of a single independent company within a state is insufficient for rate determination. It will probably also be admitted by both regulatory officials and industry representatives that it is both permissible and logical to use statistical data submitted in support of bureau filings to support the filings of most individual independent carriers. The difficulty arises because the supervisory authority has no easy way to determine the premium volume of an independent company within the state for the coverages, classifications or lines involved in the rate filing. The annual statement or the insurance expense exhibit on file with the insurance department is frequently not readily available for the rate analyst's use and often does not contain a sufficient breakdown of state-wide premiums. It would be the better part of wisdom for the independent carrier to indicate in the filing letter its premium volume for the coverages, classifications or lines involved. Such a simple statement would immediately indicate the lack of credibility of the filing company's own experience. And in the great majority of cases it would completely satisfy the regulatory official. As to the reasonableness of using the rating bureau statistics for supporting purposes the controversy hence condenses down to the question of furnishing simple and readily available information to the supervisory official. In my conversations with the state rating authorities on the subject, they have readily agreed that all they need or want in most cases is a simple statement of this nature. Speaking as a representative of one of the larger independent companies in the automobile field, I will have to agree that it is better to submit supporting information in excess rather than in deficiency. As the independent carriers gather more experience in the making of rate filings, most of them will tend to supply sufficient information and hence eliminate many of the regulatory problems which have existed in the last few years.

STATISTICAL PLANS

For some time, there have been differences of opinion between independent carriers and organization companies as to the interpretation of that feature of the rate regulatory laws calling for the annual submission of statistical data. It is the viewpoint of the independent group that the filing of statistics for annual review purposes, and the filing of statistics in support of rate filings are two separate and distinct subjects. They are so treated in the regulatory acts. The development of the N.A.I.I. Statistical Plans was predicated on this viewpoint. We are firmly convinced that the reporting of annual statistics is designed to enable regulatory authorities to determine in a broad, general way whether or not the rates charged by carriers within the state seem to be fairly reasonable. I would assume from a study of the tabulated informa-

tion furnished state authorities by rating organizations, in accordance with the provision for reporting annual statistics, that the rating bureaus agree with this concept. The information furnished by rating organizations is usually a tabulation of premiums and losses by class and territory. It represents raw data with no calculated information on claim frequency, claim cost, pure premium or loss ratio. It contains no development for the two or more years usually used in the determination of rate levels. The data could hardly be considered as a submission of statistical information in support of current rate levels. Judging from the type of data thus submitted for annual review purposes, it would seem that the rating organizations concur in the philosophy that the submission of annual statistical data need not and should not be in the complete detail necessary for rate-making purposes.

Any discussion of the filing of annual statistics inevitably includes the question as to whether or not statistics for all companies within the state are to be reported in such a manner as to be readily combinable. Except on a broad, general basis, such combination would seem to be impractical, if not impossible. The substantial differences in classification plans, rating territories and methods of operation preclude the combining of loss experience for all companies in classification and territory detail. Even where such combination is possible, (monopolistic-rate states) I wonder if it does not work to the disadvantage of organization companies. A situation of this type arose in the state of Virginia a few years ago. The statistical data of the rating bureaus for auto bodily injury and property damage was not acceptable to the Bureau of Insurance because it did not include the experience figures of several large independent writers. When the experience of the independent companies was collected and combined with that of the rating organizations, the indicated rate level was reduced approximately 6%. No doubt the rate level that was thus established worked some hardship on the organization companies whose own experience indicated the need for a higher rate level. There is no reason to believe that similar results would not be forthcoming in any other state where regulatory authorities insisted on the experience of all companies in determining the proper rate level. Although I am not familiar with all of the reasons, it would seem that situations such as that just referred to is one of the main reasons why the rating organizations did not oppose approval of the N.A.I.I. Statistical Plans.

Mr. Carlson raises several questions in connection with the N.A.I.I. Statistical Plans. He makes a point that they do not appear to be designed to furnish complete rating information. Lest there be any question on this point, let me say that these plans were not designed as rate-making statistical plans nor is it contemplated that they ever will be rate-making statistical plans. They were designed solely to satisfy the obligation of the companies to report statistical data, annually, to regulatory authorities in accordance with the rating acts. The fact that the N.A.I.I. Statistical Plans were not designed for the development of statistics in complete, rate-making detail does not preclude their use in the rating process. A reasonable and adequate rate structure can be developed from the detail obtained under the N.A.I.I. Automobile Statistical Plan. The pure premium developed for private passenger classifications are quite adequate for the establishment of classification differ-

entials. Similarly, the pure premiums developed by territory will permit the establishment of territorial differentials. It is obviously true that the type of statistical data available makes for some limitation in the selection of rating methods. Basic limits premiums are not available but basic limits pure premiums can be readily secured. Credibility based on number of claims could not be used thus limiting credibility procedures to an exposure or premium basis. Classification detail for vehicles other than private passenger as well as some lack of uniformity in classification and territorial definitions among reporting carriers provides some further limitations. In his discussion of the Statistical Plans in use by organization companies, Mr. Carlson explains the "new approach" which is embodied in their automobile statistical plan which became effective January 1, 1951. This step must be accepted as a very forward looking program designed to materially reduce the internal statistical load for member and subscriber companies. Certainly the independent companies applaud this forward step toward simplicity in statistical plans. We are learning that too much statistical detail can sometimes be embarrassing when it comes to "selling" a rate revision program. It leads to the thought that perhaps the long-time views of independent carriers on simplicity in statistical plans may have some merit.

In summing up the history of the controversy of reported statistics versus supporting information, Mr. Carlson intimates that perhaps the views expressed by independent carriers are largely a matter of principle to highlight a policy of non-uniformity rather than a matter of deep-seated adherence to the details of such non-conforming practices. Many examples can be quoted which would indicate that this viewpoint of the independent carriers is far from being simply a matter of principle. Two outstanding examples involve the pioneering done by independent companies in the field of a special classification for farm vehicles and the development of the 80% collision coverage. It has not been until recent years that the organization companies have recognized the validity of a special classification for farm passenger cars. Those of us who have specialized in the field know as a matter of long experience that the farm passenger car pure premium differential ranges from 10% to 35% on bodily injury and property damage and from 20% to 40% on automobile physical damage coverages. The development of the 80% collision coverage goes back to the early twenties. For some independent companies, a substantial portion of their collision premiums comes from the 80% coverage. Where this is true, the rate levels for the coverage are relatively low, averaging out at about the rate level of the \$25 deductible collision coverage. Probably as the result of the competition produced by the introduction of this coverage, the organization companies made it available to their members and subscribers. Their loss experience on the coverage, however, must have been substantially unfavorable since the rate levels which they use today for the 80% coverage range from 70% to 100% higher than the rates used by those companies who have more or less specialized in the coverage. These are only two out of many examples that might be quoted to prove that there is a basic logic back of the necessity for non-uniformity and non-conformity by independent carriers. No—the stand against uniformity is much more than a matter of theory. The principle of non-uniformity has been instrumental in developing classifications and coverages beneficial to the insuring public.

MANUAL RATE-MAKING PROCEDURES

Mr. Carlson is to be complimented on his very creditable job of outlining the manual rate-making procedures in simple and substantially non-technical terms. Particularly in the field of credibility procedures there has been considerable misunderstanding at the insurance department level. It seems to me that this discussion adds materially to the written subject matter and should be of assistance to all rate filers who must "sell" their rate revision programs to supervisory officials. It also seems to me that considerable benefit would be derived from making Mr. Carlson's paper available to all supervisory officials—particularly that portion of it dealing with rate-making procedures.

The historical development of the profit and contingency factor in casualty rates could perhaps be supplemented by decisive arguments in favor of a profit factor consistent with generally recognized profit elements in most industry outside the insurance field. The announced program of the National Bureau of a 5% profit and contingency factor is no more than reasonable in relation to the factor used for lines of insurance other than casualty, and in relation to what is considered a reasonable profit outside the insurance industry. If for no other reason, casualty insurance rating programs should contain a sufficient contingency factor to protect the financial structure of insurance companies against the vagaries of unknown future conditions. To be able to come within 5% of a rate level needed to produce reasonable underwriting results is no mean accomplishment. This is particularly true in the insurance business where it is often difficult to judge the effect of outside influences that materially effect the level of both claim frequency and claim cost. Those responsible for the promulgation of automobile liability rates in the last six years cannot be very proud of the underwriting results produced by the rate levels in use. It seems only reasonable that the rate makers should have allowed themselves greater leeway for contingency factors.

In summing up his discussion of rate-making procedures, Mr. Carlson comments on the necessity for judgment and flexibility. Here again, the independent carriers as a group must say a fervent "Amen." First and foremost: they stand for complete recognition of flexibility in the rate-making process and the exercise of sound judgment in the development of their rating programs.

CONCLUSION

In spite of the few conflicts of opinion as between organization and independent carriers upon which I have commented, it seems to me that the areas of disagreement are but a small part of the over-all problem of learning to live under a system of relatively strict rate regulation. There are some of us who now think we may have jumped too quickly when we agreed to some of the limiting provisions within the all-industry bill. At least there have been a few states which have taken a substantially different approach to rate regulation that may some day point the way to modification of some of the more onerous provisions in the all-industry bill. It will be interesting to watch the development in such states as California, Missouri and Idaho and to evaluate the results of regulation under the types of laws in force in those states.

When you stop to think about it, there has been a continuously progressive tendency to recognize in both organization and independent circles the neces-

sity for cooperation and collaboration in the solution of ever mounting regulatory problems which have their effect on all of us. As Mr. Carlson has so aptly said, "Regulation is with us, to stay, and only a proper appreciation of its impact on all parties can produce reconciliation of conflicting interests that will make it work for the good of all." To this end, Mr. Carlson's paper has contributed substantially.

AUTHOR'S REVIEW OF DISCUSSIONS

BY THOMAS O. CARLSON

The critics have been kinder than I anticipated a couple of weeks ago when I penned these lines which would serve as an introduction to my review of the discussions:

In this opus long in process
I have thrust the old proboscis
Into regions that a wiser man would shun.
Lured by flickers of illusion
Into fens of fell confusion,
I'm astounded that the goal was ever won.

Worse than Perils of Paulina
Is the critical arena
Where I probably will be reduced to pap.
But when epitaphs are written
And the laurels tossed as fitten
Let it not be said I ever shirked a scrap.

The comments of the four reviewers are to be highly commended for their constructive suggestions and for the extent to which they have rounded out the presentation of viewpoints that I was not in a position to represent with completeness.

Mr. Ginsburgh has presented a position which I shall designate as somewhat to the right of mine, using the term "rightism" as analogous to conservatism. His remarks represent fairly the basic differences in thinking that lie between the organized stock and the organized mutual companies. At the same time I cannot disagree fundamentally with his expression of caution as respects the utilization of such flexibility as we are able to preserve. I stated the case for flexibility forcibly because there have been such strong movements toward the restriction of such freedom of action as is now permitted. We all recognize that the flexibility presently available is a privilege the continuation of which is contingent upon the avoidance of its abuse.

As respects Mr. Ginsburgh's remarks on the basic criteria for judging rates, I still maintain that company solvency is of paramount importance in any case where doubt, or a legitimate field of argument, exists.

Mr. Resony, as expected, has concentrated on the particular problem of approval of other filings, once the filing of the central rating bureau has been acted upon. I think he has introduced a slight confusion in his reference to a

bureau filing as the upper limit of what we have discussed as the "zone of reasonableness". It may be, for all practical purposes, the upper limit of the filings to be expected by the hangers-on, but it is by no means necessarily the upper limit of the "zone of reasonableness".

This entire problem of independent filings, upon which Mr. Pruitt and Mr. Griffith also expound at length, reminds me of the school marm's question: "If there were twelve sheep in a field and one of them jumped over the fence, how many would be left?" A little boy answered: "None." The school marm observed: "Johnny, you don't know arithmetic;" to which Johnny's immediate comeback was: "No, ma'am, but I do know sheep."

I must express appreciation, in passing, for his plug for the "fairly credible" expense data produced by uniform accounting. Perhaps some one will some day produce a balance-scale on which we can properly weigh the conflicting expert testimony on that score.

Mr. Resony makes a legitimate point in stating that the final determination depends on the judgment of the supervisory official. That judgment is, of course, subject to review on hearing and in the courts. He also feels the "supporting information" provisions are the most important in the law. In that connection, I was surprised the other day, in talking to a Commissioner, to find he had overlooked the provision that he can call for supporting information, and by implication may of course indicate what he considers would be relevant to support of the filing.

With Mr. Resony's conclusions in summary I cannot quarrel, except for the fourth, suggesting review of all judgment factors with supervisory officials prior to the formal submission of a revision. Consider for example a boiler and machinery revision, which includes countrywide schedules of rates. How could a rating organization practicably consult in advance with supervisory officials in all jurisdictions as respects the judgment factors entering into the determination of the rates? As a matter of fact, the latitude of the officials in the handling of such a revision is going to be a good indicator of the possibility of the future success of regulation on the state level.

We are fortunate to add to this discussion the viewpoint of the N.A.I.I. carriers or, as I like to call them, the organized independents. Mr. Griffith is a competent spokesman and has directed his comments, as expected, to the two controversial items of statistics and supporting information, although his statement, near the close, on the profit and contingency factor is worthy of attention from all of us.

There are instances in which the writings of a single independent carrier predicating its rates on bureau filings approximate the combined writings of the bureau companies in the state. I do not feel that Mr. Griffith's suggestions answer the problem of the supervisory official in the state where the independents write the great bulk of the business—but indeed no one has yet satisfactorily solved that problem.

On the matter of statistical plans, we remain in fundamental disagreement in principle. Mr. Griffith's statement is, and I quote: "We are firmly convinced that the reporting of annual statistics is designed to enable regulatory authorities to determine in a broad, general way whether or not the rates charged by carriers within the state seem to be fairly reasonable." I ask you to compare that with the phraseology in the regulatory laws to the effect that such statis-

tics shall be in such form and detail as necessary to aid the commissioner in determining whether rating systems comply with the standards set forth in the law. To me, the comparison of the statements is sufficient to show a serious disparity in objective.

As respects the side-remark on the inadequacy of statistics furnished by rating organizations: (1) Mr. Griffith has clearly not seen all the data we furnish; and (2) the statistics are there and the law states they are to enable the commissioner to analyze; the burden of actuarial analysis is not put upon the statistical agent, but rather only the burden of compiling adequate data. I suggest the possibility that the supervisory officials delight in playing the organized carriers against the independent carriers in this connection, possibly with the objective of obtaining ultimately a uniform statistical system which will be simpler for them to administer.

For the record, since Mr. Griffith has conjectured as to the rating organizations' lack of opposition (why does he not acknowledge their assistance?) to the N.A.I.I. plans, let me say, and with authority, that it was solely because such a course was in accord with the principles underlying the Model Bill.

I do not want to engage in a dog-fight on rate-making principles, but as respects the statement that "a reasonable and adequate rate structure can be developed from the detail obtained under the N.A.I.I. Automobile Statistical Plan", I can only comment that in the first state I know of where the issue has been clearly posed, namely in Texas, the supervisory officials distinctly disagree with that thesis.

No one will quarrel with Mr. Griffith's conclusions on trends in thought throughout the industry, and his high-lighting of them is timely.

I am always genuinely fascinated and entertained with Mr. Pruitt's facility in speaking and in writing. His quotations would indicate that my isolated moles (or beauty-spots) have induced in him a sympathetic outbreak of freckles. The freckles are far more becoming, and beyond competition; or, as the shop-owner's sign puts it, he "defies computation."

Certainly he has avoided the dangerous pitfall of the profuse quoter into which tumbled the young Texas lawyer who in his first pleading wove in Shakespeare, Milton's *Areopagitica*, Locke on Human Understanding and many another imposing literary classic; the friendly judge at the close congratulated the quote-happy lawyer and added: "We have greatly enjoyed the points you have made and if we ever have a case before us in which they are involved, we shall certainly bear them in mind."

I shall comment only on Mr. Pruitt's criticisms.

In the matter of statistics reported by independents, I am surprised to find him taking a quotation out of context and performing a Don Quixote act with it. The quotation referred specifically to the *extreme* situation where a double standard is pressed providing for rigid regulation of rating organizations and virtually no regulation of independents.

As respects the coat-tails, Mr. Pruitt is the first spokesman for the independents whom I have heard disavow that metaphor. What he says on their behalf is true, although it is no less true that rating organizations have also contributed their share of new forms and techniques. I refer once again to my story of the sheep, and am content to rest my case with the second half of his quotation from Kon-Tiki on pilot fish.

In reference to supporting information, I particularly appreciate the phrase, "a premium is placed on prolixity," as an alliterative statement of fact that officials would do well to bear in mind.

Since Mr. Pruitt is so critical of making the simple complicated in Plan D, we all look for a paper from him restoring simplicity to its proper place therein.

In closing let me sprout two more moles, both originating in that modern master of phrasing, Christopher Morley. The first explains my approach which has resulted in such a wide area of agreement on the part of my reviewers:

"Most of all, men, I adore
Who tells me what I knew before
And with such tact that we agree—
Not I with him, but he with me!"

The second describes the reaction of all of us whenever we come face to face with this morass of regulatory problems. Thus spake the Old Mandarin:

"Once, in a fluoroscopic clinic,
I saw the workings of my entrails
Reflected on a screen.
Grievously I thought:
My mind, too, churns like that."

REVIEWS OF PUBLICATIONS

CLARENCE A. KULP, Book Review Editor

Life Insurance Mathematics, Robert E. Larson and Erwin Gaumnitz. John Wiley and Sons, Inc., New York. 1951. Pp. vi, 184.

It was estimated a few years ago that some 75 books had been published with pretensions to be called text-books on the mathematics of life contingencies. However, the number of modern texts in the English language is small and a new one should be greeted with great interest. The book under review has been prepared by two members of the School of Commerce in the University of Wisconsin; Mr. Larson is a lecturer in Commerce and a Fellow of the Society of Actuaries, Dr. Gaumnitz is Professor of Commerce. In their preface the authors state the book is not aimed primarily at the actuarial student but rather at the college student who has more than a superficial interest in life insurance and who has a reasonable amount of mathematical aptitude.

The present standard text, Spurgeon's *Life Contingencies*, was written by a practicing actuary to meet the requirements of actuarial students. It had of necessity to cover all the important practical aspects of life contingencies which arise in the day-to-day work of the actuarial department of a life insurance company. Messrs. Larson and Gaumnitz, in writing for a more general class of reader, were in a position to ignore these purely practical aspects and concentrate on a clear exposition of the fundamentals of the subject concerning which there has been so much discussion among actuaries in recent years. The authors unfortunately fail to do this.

The mortality table is introduced in Chapter 1 where the l_x is defined as representing "the number of persons who, according to the mortality table, attain precise age x in any year of time". This is a particularly unsatisfactory definition introducing as it does the idea of a stationary population which is in no way fundamental to the subject of life contingencies. On the same page, however, there appears the much more satisfactory statement that the mortality table is "a table of probabilities".

The authors stress in their preface the use of the recently approved revision of the International Actuarial Notation. Unfortunately, some of the symbols used which are not included in the international notation fail to follow its general plan. The most serious fault in notation is the use of the symbol ω to denote the greatest integral age for which $l_x > 0$ instead of the youngest integral age for which $l_x = 0$. As a result for non-integral ages, which arise in Chapter 6, there are values of x greater than ω for which l_x is not zero.

Chapter 2 is devoted to *Interest and Annuities Certain* and Chapters 3 and 4 to *Life Annuities* and *Life Insurance* respectively. Development is elementary and is well illustrated with examples. The discussion is limited to yearly annuities and insurances payable at the end of the year of death.

Chapter 5 is called *Net Level Reserves* and it here seems that the authors are more concerned with the practical work of the life insurance company than with an elementary presentation of the subject suitable for the wider body of students for which the book is said to be intended.

Chapter 6 is called *Advanced Topics* and deals with annuities payable more frequently than yearly and increasing annuities and insurances. The book does not discuss the force of mortality, continuous functions, insurances payable immediately on death or joint life functions.

Chapter 7, entitled *Modified Reserves*, is the longest chapter in the book and discusses in fairly full detail the various methods used in this country and Canada. A short discussion of the general problem of modified reserves would have been of interest but a detailed discussion of the various methods and the comparison between them seems quite out of place in a text not primarily intended for actuarial students. Chapters 8 and 9 provide a short introduction on the subject of surrender values and gross premiums.

Appendix Two cannot but catch the eye of even a casual examiner of the book because of the terrifying pages of formulae it contains. Nearly 8 pages are devoted to proving that the arithmetical mean of one year term insurance premiums for age x up to the end of life is greater than the level annual premium payable throughout life, a result which is practically self-evident when it is remembered that the level annual premium is equal to a weighted average of the one year term premiums.

If it were not for the poor fundamental approach to the subject, this book, excluding Chapter 7, could be recommended as suitable reading for Part III (Section 6) of the Society's examinations.

L. H. LONGLEY-COOK

OBITUARY

WILLIAM B. BAILEY
1873-1952

William B. Bailey died at his home in West Hartford, Connecticut, on January 10, 1952. Professor Bailey was Economist at The Travelers Insurance Company from 1921 until his retirement in 1946. He became a Fellow of the Casualty Actuarial Society in 1924.

Born in Springfield, Massachusetts on May 7, 1873, Professor Bailey received his A.B. Degree in 1894 and his Ph.D. Degree in 1896 from Yale University and became a member of the faculty the following year. He remained on the faculty until 1921 and was recognized as one of the leading economists of the United States. He specialized on labor problems and practical sociology and has written and lectured extensively on these topics. Among his books are "Modern Social Conditions", "Children Before the Courts of Connecticut", "Statistics", and "Social Work as a Profession".

From 1909 until 1911 he had charge of the theoretical work connected with the Federal Census of Population of 1910, drawing up the tabulation schedule and planning the detailed tables that figured in the enumeration. For five years he was Editor-in-Chief of the publication of American Statistics Association and four years Editor of the Economic Bulletin of the American Economic Association.

While at Yale, Professor Bailey was once elected the most popular professor on the campus by the students and while at the Travelers he was regarded with affection and respect by his associates.

OBITUARY

WALTER PHILLIPS COMSTOCK
1885-1951

The sudden death on May 11, 1951 of Walter Phillips Comstock, a Fellow of the Society since 1928, came as a great shock to his friends and associates.

Born March 2, 1885 in Chicago, he spent his boyhood in that city, where his father held a position with the Illinois Central Railroad. He attended Princeton University until the close of his sophomore year and then spent a year as a surveyor of railroad right of way in the midwest. Resuming his studies at the University of Chicago, he found that he had developed such physical fitness that he became an outstanding athlete. Besides being Captain of the track team in his senior year, he was a member of the baseball and football squads and received his letter in both. He was also a member, while at the University of Chicago, of Alpha Delta Phi Fraternity.

Married in 1913 to the daughter of Edwin Gilbert Cooley, Superintendent of Schools in Chicago, Mr. Comstock is survived by his son, William P. Comstock, at present Lieutenant Colonel in the Air Force, and a daughter, Mrs. Robert A. Bonfield, Short Hills, N. J. Upon the decease of his wife in 1943, Mr. Comstock took up his residence at the New York Athletic Club where he was living at the time of his death.

Mr. Comstock's first position in the insurance business was with the Continental Casualty Co. Subsequently he came to the London Guarantee and Accident Co. as Statistician. In February 1930, he accepted an executive position with the Continental Casualty Co. but returned to the London Guarantee & Accident Co. in December 1931. He continued with that Company until 1948 at which time he accepted a position as Statistician for the Preferred Accident Insurance Co.

Mr. Comstock was a member of the Masonic Order and his membership in the Association of Casualty Accountants and Statisticians and the Insurance Accountants Association extended over many years.

A logical thinker with a well stored mind, a tireless worker and a kindly "chief", he won the loyalty of his staff and the deep respect of his associates. Those who have had the privilege of knowing him intimately can testify to his devotion to his chosen profession and the high ideals which governed him in all his personal relations.

OBITUARY

ECKFORD CRAVEN DE KAY
1873-1951

Eckford Craven de Kay, president of De Kay & Company, Inc., insurance brokers and adjusters, 84 William Street, New York, died of a heart attack July 31, 1951, at the age of 78, at his home, 336 Hoyt Street, Darien, Connecticut. He was a Charter Member of the Casualty Actuarial Society, a Fellow of the Society from its inception in 1914.

Born in Albany June 12, 1873, of one of the early Dutch families of New Amsterdam, Mr. de Kay was the son of Sidney Brooks de Kay and Minna Craven de Kay. He was brought up at the family home on Staten Island where he attended St. Austin's School. Mr. de Kay attended the United States Naval Academy at Annapolis, and was a member of the Class of 1895 in Lehigh University. He served as a seaman and petty officer in the Spanish-American War. As an officer in the New York State Naval Militia, he was military secretary to the late Governor John A. Dix in 1911 and 1912.

Mr. de Kay entered the Navy as a lieutenant commander in World War I and rose to the rank of captain. After establishing the Navy's first training station at Tarrytown, New York, he served as executive officer on the battleship Nevada, and the cruiser Minneapolis.

He was recorder in the New York State Insurance Department for a short period before the war. After the war, he established the insurance firm of which he was president at the time of his death. He belonged to the Society of Colonial Wars, the Sigma Phi Society, and Ivanhoe Lodge, F. & A. M., New York. He is survived by his wife, Mrs. Kathleen H. de Kay, Darien, Connecticut, and a son, Eckford James de Kay, of Alton, Illinois.

OBITUARY

CHARLES H. FRANKLIN
1872-1951

Charles H. Franklin died in May, 1951, at the age of 79. At the time of his death, he had retired from active business but left behind him many years of active and successful pioneering in the casualty insurance field.

His insurance career started in England where he was active in coverage somewhat similar to our Workmen's Compensation. When he first came to this country in 1910, he was Manager of the United States Branch of the Frankfort General Insurance Company of Germany. He was Chairman of the Committee of Seven which organized the Workmen's Compensation Service and Information Bureau which after various reorganizations ultimately became the National Bureau of Casualty Underwriters. The importance of Mr. Franklin's part in the early development of the Bureau is indicated by the fact that the first organization meeting took place in Mr. Franklin's office in 1910 and that he was the first Secretary-Treasurer of that organization which at the time comprised only twenty companies. Throughout most of his career, he was on the active committee of the National Bureau. In 1924 he joined Continental Casualty Company and after a few years here became Assistant to President Cornelius where he remained until his retirement in 1940.

Mr. Franklin knew the insurance business thoroughly particularly from a technical standpoint. He was eager and willing to impart this knowledge to his younger associates and no young man ever asked Charles H. Franklin a question that wasn't given all the facts in a lengthy, leisurely, and almost fatherly fashion. He had time for everyone, and although his work called for a busy, intensive study, his relationship with his associates was one that will never be forgotten by those who worked with him.

He left a mark on the business as without him many worthwhile phases of compensation insurance would never have come to pass. To those of us who knew Mr. Franklin, his passing, even in retirement, is a personal loss as we can always think of the friendly, lengthy visits with him occasionally at noon over tea and scones.

OBITUARY

EDWARD ROCHIE HARDY
1862-1951

Edward Rochie Hardy, who was elected to Fellowship October 27, 1916, died June 29, 1951, at the age of 88.

While his career in the insurance business was devoted to fire insurance, casualty insurance benefited by his principal interest and activity, insurance education. He was chiefly responsible for the development of the Insurance Society of New York, of which he was Secretary from 1909 to 1946, and of the Insurance Institute of America, of which he was Secretary from 1919 to 1948.

His first work in insurance education was as Librarian of the Insurance Library Association of Boston, a position in which he served from 1899 to 1901. In 1901, he came to New York, where he gave 45 years of his life to educational activities and to the New York Fire Insurance Exchange, of which he was Assistant Manager from 1913-1929. He was also Manager of the Underwriters Association of the District of Columbia from 1914 to 1943. He lectured on insurance at New York University from 1905 to 1939, and at Columbia from 1929 to 1932.

Mr. Hardy was probably the principal force in the promotion of education of insurance personnel both through class work and libraries. He was an indefatigable advocate and practitioner in that field, and the present extensive organization and activities of the Insurance Society of New York and of other local organizations of similar purpose owe more to him than to any other one person. His national influence was felt through the Insurance Institute of America.

Mr. Hardy is survived by his widow, Mildred Bierman Hardy, and by his son, The Reverend Dr. Edward Rochie Hardy, Jr.

OBITUARY

SAMUEL M. ROSS
1904-1951

Samuel Melvin Ross, Librarian of this Society since 1948, died on July 24, 1951 at the age of 47 after a long absence from the office resulting from a heart condition brought on by a lifelong battle against rheumatic fever and its aftermath.

Born in Luzerne, Pennsylvania on June 21, 1904 and graduated from Pennsylvania State College in 1927, he entered the Statistical Division of the National Bureau of Casualty and Surety Underwriters in 1930, was transferred at an early date to the Actuarial Division, became Assistant Actuary in 1944 and took over the administration of the Actuarial Division in 1948.

He became an Associate of the Casualty Actuarial Society in 1942, a Fellow in 1943 and served as Librarian and as an ex-officio member of the Council of the Society from 1948 until his death.

He received a law degree from Fordham University in 1935 and was admitted to the New York State Bar in 1936 but never opened practice in that field, making the actuarial profession his career.

He was well-known throughout the industry, sitting with many committees in an advisory capacity and commanding wide respect for his broad background of information and his keen analytical ability.

His courage and perseverance in his fight against the handicaps raised by the rheumatic fever that first struck him at the age of seven and recurred a number of times in the succeeding years should serve as an inspiration to his many friends in this Society.

OBITUARY

HARRY V. WAITE
1882-1951

Harry Vanderbilt Waite, a Fellow of this Society, died suddenly August 14, 1951, at his summer home in Rowe, Massachusetts.

Mr. Waite was born in Hartford, Connecticut, on October 9, 1882, and started his long insurance career in 1901 as a mail runner at the home office of The Travelers Insurance Company. He later rose to Chief Clerk of the Casualty Actuarial Department and was a pioneer in the development of methods of statistical analysis for the various casualty lines of insurance written by the company.

His intensive study of the business as the company grew, gave him such a comprehensive knowledge of its detailed activities that his advice was much sought and cheerfully given to the company executives and co-workers, as well as to others outside of the organization. In this respect, throughout the years, he was consistently helpful and encouraging to his younger and less experienced associates, often embellishing his wise counsel with a humorous anecdote relating to the subject. In his connection with the casualty business during its early years, he quickly perceived the applicability of punched cards and he formulated many programs for taking advantage of that and other mechanical systems.

He subsequently became Statistician of the Department and for many years represented the company on statistical committees where his knowledge had an important part in establishing basic principles underlying finally adopted statistical plans. He devoted much time to the study and analysis of company expenses and was a pioneer in devising methods of expense allocation.

When his organization entered the fire insurance field, he organized a Fire Actuarial Department, becoming Statistician of The Travelers Fire Insurance Company in 1928 and was made Actuary in 1946, which position he held until his retirement in 1948. He was a member of the Association of Casualty Accountants and Statisticians and served on several of its committees. He was also a member of the Insurance Accountants Association.

As a diversion from his involved business duties, an outdoor life appealed strongly to him and each spring he often spent leisure hours fishing the nearby brooks and lakes and in the fall he tramped the woods with his gun and dogs. He enjoyed these same pursuits for many years at his summer home near the Mohawk Trail where he was to spend his last days.

Besides his widow, he is survived by a brother and sister.

ABSTRACT FROM THE MINUTES OF THE MEETING

May 10 and 11, 1951

The semi-annual meeting of the Society was held at the Seaview Country Club, Absecon, New Jersey on Thursday and Friday, May 10 and 11, 1951.

President Barber called the meeting to order at 2:30 P.M. on May 10th and the roll was called showing the following 46 Fellows and 11 Associates present:

FELLOWS

ALLEN, E. S.	GRAHAM, C. M.	RESONY, J. A.
BAILEY, A. L.	HARWAYNE, F.	RODERMUND, M.
BARBER, H. T.	HAUGH, C. J.	ROWELL, J. H.
BARTER, J. L.	HAZAM, W. J.	SALZMANN, R.
BERKELEY, E. T.	HOPE, F. J.	SCHLOSS, H. W.
CARLETON, J. W.	JACKSON, H. H.	SILVERMAN, D.
CARLSON, T. O.	JOHNSON, R. A.	SKELDING, A. Z.
COATES, C. S.	KORMES, M.	SMICK, J. J.
CONSTABLE, W. J.	LIVINGSTON, G. R.	TARBELL, T. F.
CROUSE, C. W.	MCCONNELL, M. H.	UHTHOFF, D. R.
ELLIOTT, G. B.	MASTERSON, N. E.	VALERIUS, N. M.
FONDILLER, R.	MATTHEWS, A. N.	WIEDER, J. W., JR.
FULLER, G. V.	MAYCRINK, E. C.	WILLIAMS, H. V.
GINSBURGH, H. J.	MUNTERICH, G. C.	WILLIAMSON, W. R.
GODDARD, R. P.	OBERHAUS, T. M.	WOLFRUM, R. J.
	PRUITT, D. M.	

ASSOCIATES

BLACK, N. C.	GILDEA, J. F.	MENZEL, H. W.
CRITCHLEY, D.	GROSSMAN, E. A.	MURRIN, T. E.
DOWLING, W. F.	MARSH, C. V. R.	SCHWARTZ, M. J.
FURNIVALL, M. L.		UHL, M. E.

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

The reading of the minutes of the meeting held November 17, 1950 was dispensed with by motion.

The Secretary-Treasurer (Richard Fondiller) read the report of the Council and upon motion it was adopted by the Society. The Council had authorized the appointment of an Advisory Committee to implement the Amendments of the Constitution and By-Laws adopted in November 1950; this Committee had reported that the extended scope of the Society should be reflected in the new Recommendations for Study, which would be published in 1952 in time for the examinations in 1953.

Upon motion, the Society adopted the recommendation of the Council to retain the present name of the Society.

President Barber delivered his Presidential Address. This was followed by the presentation of two formal papers.

Recess was then declared until the following day.

An informal dinner was held on the evening of May 10th; the dinner group was addressed by Mr. D. J. Cowie, U. S. Manager, Pearl Assurance Co., Ltd.

On May 11th, the meeting was presided over by Vice President Carlson who introduced the members of the panel, Mr. C. A. Kulp, Chairman, Messrs. H. E. Curry, H. J. Ginsburgh, C. J. Haugh and H. P. Stellwagen.

The panel discussion was on the following topics:

(1) Supporting information in connection with manual rate filings under rate regulatory laws as exemplified in the "Model Bill" for casualty and surety lines.

(2) Individual risk rating plans under the "Model Bill".

Mr. W. R. Williamson then addressed the meeting on the topic "Social Budgeting".

Upon motion, the meeting adjourned at noon.

ABSTRACT FROM THE MINUTES OF THE MEETING
November 16, 1951

The annual meeting of the Casualty Actuarial Society was held at the Hotel Biltmore, New York, on Friday, November 16, 1951. An informal dinner had been held on Thursday evening, November 15, 1951 at the Hotel Biltmore; the principal speaker was Mr. A. L. Kirkpatrick of Washington, D. C., Manager of the Insurance Department, Chamber of Commerce of The United States of America. Mr. Kirkpatrick is a Fellow of the Casualty Actuarial Society.

President Barber called the annual meeting to order at 10:20 A.M., the roll was called, showing the following 56 Fellows and 26 Associates present:

FELLOWS

ALLEN	HARWAYNE	OBERHAUS
BAILEY, A.	HAUGH	PERRYMAN
BARBER	HAZAM	PRUITT
BERKELEY	HEWITT	RESONY
BLANCHARD	HOPE	RODERMUND
BROWN, F. S.	JOHNSON	SALZMANN
CAHILL	KARDONSKY	SCHLOSS
CARLSON	KORMES	SILVERMAN
COGSWELL	KULP	SINNOTT
CONSTABLE	LINDER	SKILLINGS
CROUSE	LIVINGSTON	SMICK
DAVIES	LONGLEY-COOK	SMITH
DORWEILER	MASTERSON	TARBELL
ELLIOTT	MATTHEWS	VAN TUYL
FONDILLER	MAYCRINK	VINCENT
FULLER	MCCONNELL	WIEDER
GINSBURGH	MILLS	WILLIAMSON
GRAHAM, C. M.	MOORE	WOLFRUM
GRAHAM, W. J.	MUNTERICH	

ASSOCIATES

ACKER	GRAVES	MONTGOMERY, J. C.
BARKER, G.	GROSSMAN	MURRIN
BEVAN	HART	POTOFSKY
BLACK, N. E.	JOHE	SAWYER
CRITCHLEY	KITZROW	SCAMMON
EGER	LUFKIN	SIMON
FAIRBANKS	MACKEEN	STOKE
FURNIVALL	MENZEL	UHL
GIBSON		WERMEL

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

Mr. Barber read his presidential address.

The reading of the minutes of the meeting held May 10 and 11, 1951 was dispensed with by motion.

The Secretary-Treasurer (Richard Fondiller) read the report of the Council and upon motion it was adopted by the Society. Charles C. Hewitt, Jr., Laurence H. Longley-Cook and Elia Vergano had passed the examinations and had been admitted as Fellows; a diploma was presented to each by the President. Gordon M. Barker, John R. Bevan, Ralph S. Brindise, Alfred A. Fairbanks, Clyde H. Graves, Richard L. Johe, Earl F. Petz, Jr., Leroy J. Simon and Michael T. Wermel had passed the examinations and had been admitted as Associates. Reprints of "Rate Regulation and the Casualty Actuary" by T. O. Carlson had been published to be sold to the insurance industry.

The President announced the deaths, during the last year, of six Fellows, W. P. Comstock, E. C. DeKay, C. H. Franklin, E. R. Hardy, S. M. Ross and H. V. Waite. Obituary notices appear in this number of the *Proceedings*.

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

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

CASUALTY ACTUARIAL SOCIETY ANNUAL REPORT ON FINANCES

Cash Receipts and Disbursements from October 1, 1950 to September 30, 1951

Income		Disbursements	
On deposit in Marine Midland on October 1, 1950	\$3,853.79	Printing & Stationery	\$4,079.54
Members Dues	\$3,961.00	Postage, Tel., Exp., etc.	182.39
Sale of Proceedings	1,955.95	Secretarial Work	657.00
Examination Fees	855.66	Examination Expense	768.07
Luncheons & Dinners	2,090.13	Luncheons & Dinners	2,495.50
Michelbacher Fund	804.92	Library	13.63
Interest on Bonds	125.00	Storage of Proceedings	80.18
Subscription to Int. Congress of Actuaries	236.25	Insurance—Secy's. Bond & Fire Ins. on Proceed- ings & Library	32.50
Return of Excess Pay- ments to Examiners	168.50	Subscription to Int. Con- gress of Actuaries	221.22
Foreign Exchanges	—4.48	Prospectus	709.93
	\$10,192.93	Reprint—Int. Actuarial Notation	81.60
		Miscellaneous	36.15
		Total	\$9,357.71
		On deposit Sept. 30, 1951 in Marine Midland Trust Co.	4,689.01
Total	\$14,046.72		\$14,046.72

ANNUAL REPORT ON FINANCES (*continued*)

Assets		Liabilities	
Cash in Bank	\$4,689.01	Michelbacher Fund 9-30-51	\$4,823.60
U.S. Savings Bonds	5,000.00	Surplus	4,865.41
	<hr/>		<hr/>
	\$9,689.01	Total Liabilities & Surplus	\$9,689.01

The Examination Committee (Roger A. Johnson, General Chairman) submitted a report of which the following is a summary:

1951 EXAMINATIONS—SUCCESSFUL CANDIDATES

The following is a list of those who passed the examinations held by the Society on May 8 and 9, 1951:

ASSOCIATE EXAMINATIONS

PART I:	K. Andrews	E. H. Hill	M. Kazakoff
	C. M. Barker	R. L. Hurley	T. B. Murphy
	C. Castonguay	R. L. Johe	N. Paroian
	R. A. Gritten	M. V. Johns	J. R. Pickering
	J. W. Hawthorne	R. H. Kallop	E. Roa, Jr.
PART II:	N. J. Bennett	R. A. Gritten	N. Paroian
	J. R. Bevan	W. V. Hart, Jr.	J. R. Pickering
	C. Castonguay	J. W. Hawthorne	E. Roa, Jr.
	F. H. Firor, Jr.	J. C. Hickman	E. E. Stancik
	T. W. Fowler	E. H. Hill	L. Tarbell, Jr.
	W. S. Gillam	J. D. Morrison	P. M. Thexton
	R. B. Goode, Jr.	T. B. Murphy	D. G. Williams
		V. W. Palm	
PART III:	K. Andrews	C. H. Graves	N. Paroian
	G. M. Barker	R. A. Gritten	T. H. Pate
	J. R. Bevan	J. W. Hawthorne	E. F. Petz, Jr.
	C. Castonguay	E. H. Hill	J. R. Pickering
	J. P. Chiarulli	J. D. Hutcheson	A. V. Resony
	H. G. Eimers	R. L. Johe	E. Roa, Jr.
	R. B. Foster	M. V. Johns	L. J. Simon
	T. W. Fowler	R. H. Kallop	E. E. Stancik
	L. J. Gibney	R. J. Mills	P. M. Thexton
		T. B. Murphy	
PART IV:	G. M. Barker	A. V. Fairbanks	J. T. Purcell
	J. R. Bevan	N. M. Franklin	L. J. Simon
	R. S. Brindise	R. L. Johe	J. H. Woodworth

FELLOWSHIP EXAMINATIONS

PART I:	R. S. Brindise C. H. Graves J. B. Haley, Jr.	L. H. Longley-Cook H. W. Menzel	T. E. Murrin E. F. Petz, Jr. J. A. W. Trist
PART II:	R. B. Foster	L. H. Longley-Cook	E. F. Petz, Jr.
PART III:	D. Critchley		L. H. Longley-Cook
PART IV:	D. Critchley	L. H. Longley-Cook	E. Vergano

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

Editor	Emma C. Mayerink
Librarian	Gilbert R. Livingston
Chairman—Examination Committee	Roger A. Johnson

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

President	Thomas O. Carlson
Vice-President	Joseph Linder
Vice-President	Seymour E. Smith
Secretary-Treasurer	Richard Fondiller
Editor	Emma C. Mayerink
Librarian	Gilbert R. Livingston
Chairman—Examination Committee	Roger A. Johnson

Members of the Council: (terms expire in 1954):

Arthur L. Bailey
John W. Carleton
George B. Elliott

The meeting marked a change in the activities of the Society to include rating subjects for fire and allied lines of property insurance. In order to speed as rapidly as possible its entry into the fire field, the Society elected as Fellows the following six outstanding fire rating men:

Frederick W. Doremus
Homer D. Rice
A. J. Snow
Lewis A. Vincent
Leon A. Watson
John P. Woodall

The papers appearing in this Volume were presented.
Recess was taken for lunch at the Hotel until 2:15 P.M.

President Barber turned the meeting over to Vice-President Masterson. Informal discussion of the following topics was participated in by the members of the Society and by representatives of insurance companies and organizations:

1. Introduction to Fire Insurance Ratemaking
 - a. Measurement of fire hazard
 - b. Class and Schedule rates
 - c. Ratemaking statistics
2. Recent Developments in Uniform Accounting
 - a. Revised Insurance Expense Exhibit
 - b. Definitions of expense groups
 - c. Allocation of costs to lines
 - d. Relationship between Uniform Accounting and Ratemaking.

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

1951 EXAMINATIONS OF THE SOCIETY

Examination for Enrollment as Associate

PART I

1. (a) Using the identity $x^3 - (x - 1)^3 = 3x^2 - 3x + 1$, prove that
- $$\sum_1^n x^2 = \frac{n(n+1)(2n+1)}{6},$$
- and proceed to obtain an expression for the standard deviation of the first n natural numbers.

- (b) Apply the time reversal test to the formula

$${}_oP_i = \frac{\sum p_i (q_o + q_i)}{\sum p_o (q_o + q_i)}$$

Explain the significance of your result.

2. Of a certain distribution, the first 4 moments about zero as an origin are

$$\begin{array}{ll} v_1 = 1 & v_3 = 5 \\ v_2 = 3 & v_4 = 7 \end{array}$$

Find the mean, standard deviation, skewness and kurtosis of the distribution.

3. Given the following observations:

Year	Y	Year	Y
1941	8	1946	14
1942	5	1947	12
1943	6	1948	12
1944	9	1949	15
1945	8	1950	11

- (a) Compute Pearson's coefficient of variation.
- (b) Fit a straight line by the method of least squares, expressing your equation in terms of the year 1941 as origin.
4. Prove that the mean = np and the standard deviation = \sqrt{npq} for the distribution generated by $(q + p)^n$, where $q + p = 1$.
5. (a) Show that compound interest at any given effective rate i per annum for part of a year is less than simple interest for that time at rate i .
- (b) Derive the following formula, where x and y are positive integers and i is the effective rate of interest per period:

$$\overline{a|y} + \overline{a|2y} + \dots + \overline{a|xy} = \frac{1}{i} \left[x - \frac{\overline{a|xy}}{\overline{s|y}} \right]$$

6. (a) A series of payments is to be made as follows: The first after n_1 years, the second after a further n_2 years, the third after a further n_3 years, and so on; the amount of the payment for any period is to bear to \$1 the same ratio that interest for that period bears to interest for one year. If $n_1 + n_2 + n_3 + \dots + n_r = n$, prove that the present value of the series of payments is the same as that of an annuity of \$1 payable at the end of each year for n years.
- (b) A decreasing annuity will pay \$600 at the end of 6 months, \$550 at the end of one year, etc., until a final payment of \$150 is made at the end of 5 years. Find the present value of these payments if money is worth 4% compounded semi-annually.

$$\text{Given: } a_{\overline{10}|} \text{ at } 2\% = 8.98$$

7. (a) An accounting machine costs \$3,000 when new and will require replacement after 15 years. What sum will be required to purchase the machine and also provide for a new one every 15 years, if the final salvage value is expected to be \$500 and money is worth 5%?

$$\text{Given: } \frac{1}{a_{\overline{15}|}} \text{ at } 5\% = .096$$

- (b) Find the value of a \$5,000 note with interest at 4% payable semi-annually, maturing in two equal installments at the ends of 10 and 20 years, if it is to yield 5% convertible semiannually.

$$\begin{aligned} \text{Given: } 1.025^{-20} &= .61 \\ 1.025^{-40} &= .37 \end{aligned}$$

8. A loan of \$10,000 is being repaid by an annuity payable at the end of each year for 15 years, with an effective interest rate of 4%. After making 5 payments, the borrower agrees to liquidate the loan by five annual payments covering only the interest on the outstanding balance, plus five additional annual payments such that the tenth and succeeding payments will constitute an increasing arithmetic series. What is the amount of the increment in the annual payment in the latter years of the loan?

$$\begin{aligned} \text{Given, at } 4\% \quad a_{\overline{10}|} &= 8.1 \\ a_{\overline{15}|} &= 11.1. \end{aligned}$$

PART II

1. (a) Find $\frac{dy}{dx}$ for the following function:

$$x + \sqrt{a^2 - y^2} = a \log \frac{a + \sqrt{a^2 - y^2}}{y}$$

- (b) If $y = x^2 e^x$, find $\frac{d^n y}{dx^n}$

2. (a) Find $\int \frac{2x + 3}{x^3 + x^2 - 2x} dx$

- (b) Integrate with respect to x :

$$y = \frac{\sqrt{a^2 - x^2}}{x^4}$$

3. (a) Evaluate

$$\int_0^1 \int_0^{1+z} \int_1^y \frac{1}{\sqrt{x^3}} dx dy dz$$

- (b) At noon, one ship is steaming east at the rate of 15 miles and a second ship, 40 miles north of the first ship, is steaming south at the rate of 20 miles an hour. Are they approaching or separating at one o'clock, and at what rate? At what time will they be closest?

4. (a) The temperature of a liquid in a room of temperature 20° is observed to be 70° and after 5 minutes it is 60° . Assuming the rate of cooling to be proportional to the difference of the temperatures of the liquid and the room, find the temperature of the liquid 25 minutes after the second observation.

- (b) Express in series the area bounded by $y = e^{-kx^2}$, the x axis, and the lines $x = \pm a$. ($k > 0$)

5. (a) Find $\Delta^2 U_x$, if $U_x = x^4 - 12x^3 + 42x^2 - 30x + 9$

- (b) Given

$$u_x = u_0 + x_{(1)} \Delta u_0 + x_{(2)} \Delta^2 u_0 + x_{(3)} \Delta^3 u_0$$

Express u_x in terms of:

- Gauss's "forward" formula,
- Gauss's "backward" formula,
- Stirling's formula, and
- Bessel's formula.

6. If n be a positive integer, prove that u_n is the difference between the two series:

$$\begin{aligned} & n_{(1)} u_1 + (n+1)_{(3)} \Delta^2 u_0 + (n+2)_{(5)} \Delta^4 u_{-1} + \dots \\ & \text{and } (n-1)_{(1)} u_0 + n_{(3)} \Delta^2 u_{-1} + (n+1)_{(5)} \Delta^4 u_{-2} + \dots \end{aligned}$$

7. Given the following premiums for endowment insurances, obtain as accurately as possible the premium for age 23, term 17 years.

<u>Age</u>	<i>Premiums for Term</i>		
	<u>15 years</u>	<u>20 years</u>	<u>25 years</u>
20	5.95	4.42	3.55
25	6.05	4.53	
30	6.14		

8. (a) Express $([3] + [5] - [7]) u_0$ in terms of $u_{-3}, u_{-1}, u_0, u_1, u_3$

(b) Evaluate $\sum_1^n \frac{(2x+3)}{x(x+1)} 3^{-x}$

PART III

1. (a) A can hit a target 4 times in 5 shots; B, 3 times in 4 shots; C, 2 times in 3 shots. Each fires once, and 2 hits are found. What is the probability that it is C who has missed?

(b) The sum of two whole numbers is 100. Find the chance that their product is greater than 1,000.
2. (a) One card of a pack of 52 cards has been lost. From the remainder of the pack, two cards are drawn and found to be spades. What is the chance that the missing card is a spade?

(b) A coin whose faces are marked 3 and 5 is tossed 10 times. What are the odds against the sum of the numbers thrown being more than 42?
3. (a) A ball 3 inches in diameter is thrown against a net made of fine wires placed 6 inches apart. If you were to bet that the ball would go through cleanly in a single toss, what odds would you be willing to give?

(b) John writes a letter to Tom and does not get an answer. Assuming that one letter in n is lost in passing through the mails, what is the chance that Tom received the letter, it being considered certain that Tom would have answered the letter if he received it?
4. A, B, and C throw in order, A first, B second, and C last, each using three dice and continuing to throw in that order until one wins with a throw of 10. Find their respective probabilities of winning.
5. (a) The probability that a man aged 30 and another man aged 50 will both survive 20 years is 0.4. Out of 48,000 men alive at age 30, 3,000 will die before attaining age 40. What is the probability that a man aged 40 will die within the next 30 years?

- (b) Express the following probabilities: that out of 25 persons aged x ,
- (a) Exactly 5 will die in a year,
- (b) Not more than 5 will die in a year, and
- (c) 5 designated individuals and no more will die in a year.

6. (a) Prove
$$\frac{e_x \cdot e_{x+1} \cdot e_{x+2} \cdot \dots \cdot e_{x+n-1}}{(1 + e_{x+1})(1 + e_{x+2}) \cdot \dots \cdot (1 + e_{x+n})} = {}_n p_x$$

(b) Prove
$$A_x u_x = A_{x+1} + \frac{q_x}{p_x}$$

7. (a) Express in commutation symbols the present value of a life annuity to a man aged 30 beginning with initial payment of \$100 at once, decreasing by \$5 yearly until payment is zero.
- (b) Given any two of the three functions a_x , A_x , and P_x , the rate of interest i at which they were calculated can be found. Show the 3 formulae for the calculation of i which can be developed from the various combinations of two of the three functions.

8. A twenty payment insurance policy provides for the following death benefits:

- (1) \$500 in event of death during the first 5 years,
 (2) \$1,000 in event of death during the next 10 years, and
 (3) \$1,500 in event of death thereafter.

Give in terms of commutation symbols formulae for:

- (a) the net annual premium
 (b) the 12th terminal reserve by both the retrospective and prospective methods.

PART IV

1. (a) Thieves smash a show window opening into the premises, when the shop is closed at night, "snatching" a fur coat.
- (1) What coverage is given for this loss under an Open Stock policy?
 (2) If this loss had occurred while the premises were open for business, what policy would cover?
 (3) Is the glass breakage covered under any single or package burglary policy?
- (b) Explain the following terms as applied to Boiler and Machinery Insurance: (1) Actual Cash Value and (2) Coinsurance.
2. (a) Why is Employers Liability coverage offered in the Standard Compensation policy?

- (b) What do you understand by the following terms as related to Workmen's Compensation coverage? Give an example of each:
- (1) Standard Exception
 - (2) General Inclusion
 - (3) General Exclusion.
3. (a) Describe three ways in which an employer might provide benefits for employees in compliance with the New York Disability Benefits Law.
- (b) How does the "average earnings clause" in a personal accident and health policy operate, and why is it particularly important if the policy is non-cancellable?
4. (a) In what instances does an Automobile Liability policy become excess insurance?
- (b) Give the three common law principles that protect consumers and which have led to the development of Products Liability coverage.
5. (a) What is the effect on credibility requirements if the cost of accidents as well as the number of accidents is used to derive credibility standards?
- (b) Outline five differences between Suretyship and most other insurance lines which affect rate-making processes.
6. (a) It is demonstrable that expense ratios can be expected to vary by size of risk. How is this fact recognized by the rate-making methods of the National Council on Compensation Insurance?
- (b) In judging the legality of casualty insurance rates, to what information must due consideration be given under the majority of rate regulatory laws?
7. (a) A so-called "earned factor" is used in Automobile Liability rate-making. How is this factor developed and what does it do?
- (b) It has been suggested that calendar-accident year statistics might provide a better basis, for Automobile Liability ratemaking, than policy year statistics. The calendar-accident year method involves the determination of premiums earned during a given calendar year, regardless of date of issue, and losses incurred on accidents occurring during the same year. What are the advantages of this method?
8. Give the two important limitations now applied to the payroll base of Workmen's Compensation premiums, and discuss these limitations with respect to the two primary requisites of a good premium base. If these limitations were to be removed, what steps would you suggest for appropriate revision of present rates?

EXAMINATION FOR ENROLLMENT AS FELLOW

PART I

1. (a) What are the characteristics which a risk must possess in order that it may be regarded as insurable?
(b) What is the risk which an employer transfers to an insurance carrier when he buys a policy of Workmen's Compensation Insurance subject to a Retrospective Rating Agreement in which ratable losses are limited to \$15,000 with respect to each accident?
2. (a) In what sense does insurance eliminate risk from the standpoint of the insured?
(b) How does the granting of each insurance affect the risk of an insurance carrier?
3. List the points on which any investment should be judged and discuss their relative importance in selecting investments for a casualty insurance company.
4. (a) Do you regard railroad equipment trust certificates in general as good investments? Give the reasons for your answer.
(b) Name and discuss briefly three tests of the investment position of state and municipal bonds.
5. (a) Distinguish between *warranties* and *representations* by the insured in the negotiation of contracts of insurance.
(b) Discuss the consequences of misrepresentation by the insured.
6. The Constitution of the United States places the power to regulate interstate commerce in the Congress; and the Congress cannot delegate its powers to the States. Then, in view of the decision handed down June 5, 1944, by the United States Supreme Court in the case of *United States v. South-Eastern Underwriters Association et al.*, explain how the Congress can allow the States to regulate insurance and how the States can assume the regulation of insurance.
7. Discuss the advantages and disadvantages of Federal versus State regulation of the casualty insurance business, and include in your discussion an evaluation of such regulation by the States as it has actually worked out in the past two years.
8. (a) Distinguish between a *rating organization* and an *advisory organization*, as defined in most of the casualty and surety rate regulatory laws now in effect in the United States.
(b) Explain in what sense and to what extent the National Association of Insurance Commissioners may be said to fulfill the functions of a Federal authority in the regulation of insurance.

PART II

1. Develop a general formula for determining discounts for deductible coverages in liability insurance. (Set forth clearly the meaning of each of the symbols you employ.)
2. Write a brief explanation of the general theory of prospective experience rating, intended as an introduction to the subject for apprentices in the Workmen's Compensation underwriting department of a large casualty insurance company, each of whom may be presumed to have a knowledge of *The Basic Manual* issued by the National Council on Compensation Insurance, and some knowledge of elementary algebra and elementary statistics.
3. Determine the Tax Multiplier and compute the Basic Premium Factor for Workmen's Compensation risks developing a Standard Premium of \$20,000 in a retrospective rating plan in which—for such risks—the Maximum Retrospective Premium Factor is to be 143.9%, the Minimum Retrospective Premium Factor is to be 51.4%, and the Loss Conversion Factor is to be 1.00, and in which there is to be no limitation upon the amount of losses entering into the computation of Retrospective Premiums in consequence of any one accident. The composition of manual premium rates for Workmen's Compensation insurance in the state in which the plan is to be used, is as follows: Expected Losses, .598; Acquisition Costs, .175; Administration and Payroll Audit, .095; Inspection and Bureau Expenses, .025; Claim Investigation and Adjustment, .080; Taxes, Licenses and Fees, .027; and the plan is to reflect the following gradation in expense allowances:

	<i>For Acquisition</i>	<i>For Adminis- tration and Payroll Audit</i>
Of first \$ 1,000 of Standard Premium	17.5%	9.5%
Of next 4,000 of Standard Premium	12.5%	4.1%
Of next 95,000 of Standard Premium	7.5%	4.1%
Of Standard Premium in excess of \$100,000	6.0%	4.1%

The following values of the Excess Pure Premium Ratio, ρ_s , where s is the ratio of losses (without limitation) to Standard Premium and .598 is the expected value of s , may be considered to be correct for risks developing a Standard Premium of \$20,000 in the state in which the plan is to be used.

s	ρ_s
.22	.651
.23	.637
.24	.623
1.12	.063
1.13	.060
1.14	.059

4. Describe briefly the Comprehensive Rating Plan for National Defense Projects which was in use during World War II. Give the formula for the determination of final premiums; state what modifications in manual rates were involved, and how expenses of each of the following categories were provided for in the Plan:
 - (i) Acquisition Costs; (ii) Administration and Audit Expenses; (iii) Inspection and Accident Prevention Expenses; (iv) Taxes; (v) Allocated Claim Expenses; (vi) Unallocated Claim Expenses.
5. (a) What difficulties hinder adoption in the United States of a system of compensation (similar to Workmen's Compensation) for injuries caused by automobile accidents?
 - (b) What advantages (if any) would such a system, in combination with compulsory automobile compensation insurance, have for society over the present system of negligence law in combination with compulsory automobile liability insurance?
6. Discuss the advantages and disadvantages of group hospitalization and group disability income insurance in comparison with individual insurance from the standpoint of: (a) the insurer, and (b) the insurance-buying public.
7. (a) Distinguish between *social assistance* and *social insurance*.
 - (b) List the major categories of protection which should be afforded in any comprehensive social security program.
8. Specify the statistical information which one would need in order to calculate the cost of benefits under an unemployment compensation law (similar to those now in effect in the United States) in a state in which no such law has ever previously been in force.

PART III

1. In the branch offices of Company C, no report of a "medical only" Workmen's Compensation claim is made to the Home Office until after the claim is closed. Outline a method for use in the Home Office in establishing reserves at the end of each month for losses on account of such claims.
2. A substantial part of the Workmen's Compensation, Automobile Liability and General Liability business of Company C is written on policies which are subject to retrospective rating agreements. Outline a method for determining at the end of each month the amounts of the reserves which shall be carried for retrospective returns.
3. All of the policies and renewals of a certain monoline casualty insurance company are issued for a term of one year and the entire premium for each of them is payable upon its effective date. In each quarter of the Calendar Year 1951, the premiums written by the Company will amount to \$3,000,000. On December 31, 1951, it will have a surplus of \$5,000,000. Its management plans to expand its operations so that, in each quarter of 1952, beginning with the first quarter, its written premiums will exceed

those of the preceding quarter by a certain fixed amount, X . For each policy or renewal of 1951 or 1952 Policy Year, acquisition costs and taxes amounting to 25% of the written premium, will be incurred in full upon its effective date. On all premiums earned within the Calendar Year 1952, the company may reasonably expect to realize in that year an underwriting profit of 3%. On the assumption that there will be no gain or loss from investments in 1952, determine the maximum value that X may have if the company's surplus on December 31, 1952, is to be not less than \$4,202,500.

4. Company A has reinsured Company B against ultimate loss in excess of \$10,000 on account of any one accident under any one or several policies of Workmen's Compensation Insurance issued by Company B. As a result of an accident which occurred February 25, 1949, in which an employee of one of its policyholders was instantly killed, but no other person was injured, Company B has become liable to pay to the employee's widow (who was his sole dependent, born December 19, 1919) compensation at the rate of \$28 per week from the date of the accident until her death or remarriage, and in the event of her remarriage, a bonus of \$2,800 in one sum immediately thereafter. In January, 1951, B reports to A that the widow is alive, in good health, and not remarried. Express in terms of the commutation symbols for which values are given in Roeber and Marshall: "An American Remarriage Table", the reserve which Company A should carry as of December 31, 1950, on account of this case. Assume that no part of the liability of Company B will be discharged by commutation.
5. (a) What important change in Schedule P, Parts 1 and 2, was made in the 1950 Edition of the Annual Statement blank?
(b) Do you think that the distribution to Policy Year of unallocated claim expenses paid which is required in Schedule P, Parts 3 and 4, is entirely satisfactory? Give the reasons for your answer.
6. Design a punch card for use in the Home Office of a company writing a large volume of Workmen's Compensation Insurance, in recording all of the information from reports prepared in accordance with the Unit Statistical Plan of the National Council on Compensation Insurance, and such other information as you think it would be well to have in such a card. Indicate the conditions under which more than one such card would be required for one policy.
7. You have been asked to construct an ideal frequency distribution of all non-fatal injuries (excluding only those which caused permanent total disability) suffered in the course of employment in operations of some specified class in some specified State, by number of days of temporary total disability resulting therefrom. Outline the steps you would take in carrying out this assignment. What data would you use, and from what sources would you obtain them? What method or methods of graduation would you employ? You may select the class of operations and the State which—in your answer to this question—you assume to have been specified.

8. A certain organization has a fixed membership of 500 men, all engaged in a certain hazardous occupation for which the mean annual rate of accidental mortality is .004. Immediately upon the resignation or death of any member, another man of the same occupation is elected to take his place. An insurance company makes a contract assuring the payment of \$25,000 to the dependents or the estate of each man who meets an accidental death while he is a member of the organization, provided such death occurs within a certain period of one year. During that year, no two members are likely ever to be at the same place or on the same train, airplane or vessel. Express the total pure premium for reinsurance protecting the insurance company against an aggregate loss in excess of twice the expected loss under that contract. Carry out the computation of the pure premium as far as you can without evaluating numerically any power of e .

PART IV

The following data have been taken from the records of Company X, a casualty insurance company. All items except assets and liabilities are within the Calendar Year 1950.

Assets and liabilities are as of December 31, 1950, unless otherwise noted. Items 1 through 8 are net as to reinsurance.

(1)	Premiums earned	\$50,000,000
(2)	Unearned premiums	23,000,000
(3)	Losses incurred	25,700,000
(4)	Unpaid losses	26,050,000
(5)	Loss adjustment expenses incurred	6,500,000
(6)	Unpaid loss adjustment expenses	4,300,000
(7)	Other underwriting expenses incurred	18,000,000
(8)	Other unpaid expenses	200,000
(9)	Federal income taxes incurred	200,000
(10)	Unpaid taxes, licenses, and fees, (including Federal income taxes)	1,400,000
(11)	Cash dividends declared to stockholders	1,000,000
(12)	Dividends declared and unpaid	300,000
(13)	Excess of liability and compensation statutory and voluntary reserves over case basis and loss expense reserves	2,500,000
(14)	Decrease in excess of liability and compensation statutory and voluntary reserves over case basis and loss expense reserves	700,000
(15)	Net investment income earned	2,000,000
(16)	Net realized capital gains	300,000
(17)	Net unrealized capital gains	2,000,500
(18)	Agents' balances or uncollected premiums	5,040,000
(19)	Ceded reinsurance balances payable	40,000
(20)	Net loss from agents' balances charged off	500
(21)	Bonds	50,000,000
(22)	Stocks	20,000,000
(23)	Real Estate	1,000,000

(24) Cash and bank deposits	5,000,000
(25) Interest, dividends and real estate income due and accrued	350,000
(26) Contingency reserve	7,000,000
(27) Capital paid up	3,000,000
(28) Surplus as regards Policyholders, 12-31-49	20,000,000

Prepare the following parts of the Annual Statement (Association Convention Edition, 1950) of Company X for the year ended December 31, 1950. Use the numbers of the items given above, rather than their descriptions, in order to conserve time.

- (a) Statement of Income of the Underwriting and Investment Exhibit.
(b) Capital and Surplus Account of the Underwriting and Investment Exhibit.
- (a) Page 2 captioned "*Assets*".
(b) Page 3 captioned "*Liabilities, Surplus and Other Funds*".
- Outline the methods you would use in allocating the expenses of the Tabulating Department of a large multiple-line casualty insurance company to lines of business.
- Discuss the practicability of determining expense ratios by State for a large casualty insurance company operating in many States.
- In a hearing before a certain State Legislative Committee appointed to inquire into the making of premium rates for Workmen's Compensation Insurance, the opinion has been expressed that interest earnings on the capital and surplus funds and on the reserves for unearned premiums and unpaid losses, held by insurance companies, should be taken into account in determining the profit loading in such rates. You have been asked by the Committee to comment on this opinion. Outline the comments you would make.
- Discuss the probable consequences of a war economy, including effective price and wage controls, upon the underwriting results for: (a) Workmen's Compensation Insurance; and (b) Power Plant Insurance.
- Company A, a non-participating stock casualty insurance company, proposes to discontinue the writing of automobile liability insurance in a certain State, and to reinsure with Company B, effective July 1, 1951, 100% of its liability under its unexpired automobile policies issued in that State. The premiums on all of these policies have been paid in full and the agents have received all commissions due them. A will make all of its records available to B, but intends to retain its agency force in the State for the writing of bonds and insurances other than automobile liability. Claims arising out of accidents occurring before July 1, 1951, will be adjusted and paid by A; but claims arising out of accidents occurring on and after that date will be adjusted and paid by B. The gross premium for the reinsurance granted to A by B will be 100% of A's unearned premium

reserve as of June 30, 1951. If you were the actuary of Company B, how would you determine the ceding commission that B should allow A on this transaction?

8. Discuss the problems of insurers and their reinsurers arising out of the nature of current demands for: (a) Product Liability Insurance covering manufacturers and processors of foods and drugs; and (b) Comprehensive Property Damage Liability Insurance covering manufacturers and contractors.

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CASUALTY
ACTUARIAL SOCIETY

ORGANIZED 1914

1952 YEAR BOOK

Foreword

Officers, Council and Committees

List of Fellows and Associates

Officers of the Society since Organization

List of Deceased Members

Constitution and By-Laws

Examination Requirements

(Addendum to Volume XXXVIII of the *Proceedings*)

FOREWORD

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

The members of the Society have also presented original papers to the *Proceedings* upon the scientific formulation of standards for the computation of both rates and reserves in accident and health insurance, liability, burglary, and the various automobile coverages. The presidential addresses constitute a valuable record of the current problems facing the casualty insurance business. Other papers in the *Proceedings* deal with acquisition costs, pension funds, legal decisions, investments, claims, reinsurance, accounting, statutory requirements, loss reserves, statistics, and the examination of casualty companies. "The Recommendations for Study" appear in *Proceedings* No. 64 and are in effect for the 1950 examinations and thereafter. The Report of the Committee on Mortality for Disabled Lives together with commutation tables and life annuities has been printed in *Proceedings* No. 62. The Committee on Compensation and Liability Loss and Loss Expense Reserves submitted a report which appears in Volume XXXV.

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

The lower grade of membership in the Society is that of Associate. Examinations have been held every year since organization; they are held on the second Tuesday and following Wednesday during the month of May, in various cities in the United States and Canada. The membership of the Society consists of actuaries, statisticians, and executives who are connected with the principal casualty companies and organizations in the United States and Canada. The Society has a total membership of 287, consisting of 160 Fellows and 127 Associates. The annual meeting of the Society is held in New York in November.

The Society issues a publication entitled the *Proceedings* which contains original papers presented at the meetings. The *Proceedings* also contain discussions of papers, and reviews of books. This Year Book is published annually. "Recommendations for Study" is a pamphlet which outlines the course of study to be followed in connection with the examinations for admission. These two booklets may be obtained free upon application to the Secretary-Treasurer, 60 John Street, Room 901, New York 38, N. Y.

CASUALTY ACTUARIAL SOCIETY

NOVEMBER 16, 1951

THE COUNCIL

<i>*Officers:</i>	THOMAS O. CARLSON	<i>President</i>
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	GILBERT R. LIVINGSTON	<i>Librarian</i>
	ROGER A. JOHNSON	<i>Chairman-Examination Committee</i>
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	HARMON T. BARBER	1955
<i>†Ex-Vice-Presidents:</i>	RUSSELL P. GODDARD	1953
	NORTON E. MASTERSON	1955
<i>†Elected:</i>	ERNEST T. BERKELEY	1952
	WILLIAM J. CONSTABLE	1952
	DUDLEY M. PRUITT	1952
	EDWARD S. ALLEN	1953
	CLARENCE A. KULP	1953
	JOHN A. MILLS	1953
	ARTHUR L. BAILEY	1954
	JOHN W. CARLETON	1954
	GEORGE B. ELLIOTT	1954

**Terms expire at the annual meeting in November 1953.*

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

COMMITTEES

COMMITTEE ON ADMISSIONS

JAMES M. CAHILL (CHAIRMAN)
 HAROLD J. GINSBURGH
 NORTON E. MASTERSON
 FRANCIS S. PERRYMAN
 THOMAS F. TARBELL

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 LAURENCE H. LONGLEY-COOK
 DUDLEY M. FRUITT
 JOHN W. WIEDER, JR.

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 DUNBAR R. UTHOFF

ASSOCIATESHIP

RICHARD J. WOLFRUM (CHAIRMAN)
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WILLIAM J. CONSTABLE

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CHARLES M. GRAHAM
EMMA C. MAYCRINK

SPECIAL COMMITTEES

COMMITTEE ON SOCIAL INSURANCE

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A. L. KIRKPATRICK
CLARENCE A. KULP
ARTHUR N. MATTHEWS
WILLIAM R. WILLIAMSON

COMMITTEE ON STATUTORY DISABILITY INSURANCE

FRANCIS S. PERRYMAN (CHAIRMAN)
JOHN W. CARLETON
CHARLES J. HAUGH
NORTON E. MASTERTSON
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LOSS AND LOSS EXPENSE RESERVES

JOSEPH LINDER (CHAIRMAN)
HARMON T. BARBER
JOHN W. CARLETON
NORTON E. MASTERTSON
JOHN A. MILLS
E. SHAW SKILLINGS
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COMMITTEE ON DEVELOPMENT

HARRY V. WILLIAMS (CHAIRMAN)
JOHN W. CARLETON
CLARENCE A. KULP
SYDNEY D. PINNEY
SEYMOUR E. SMITH

MEMBERSHIP OF THE SOCIETY, NOVEMBER 16, 1951

FELLOWS

Those marked (†) were Charter Members at date of organization, November 7, 1914.
Those marked (*) have been admitted as Fellows upon examination by the Society.

Admitted	
*Nov. 21, 1930	AINLEY, JOHN W., Supervising Underwriter, The Travelers Insurance Company, 700 Main Street, Hartford 15, Conn.
*Nov. 14, 1947	ALLEN, EDWARD S., Actuary, Compensation Insurance Rating Board, 125 Park Avenue, New York 17, N. Y.
*Nov. 13, 1931	AULT, GILBERT E., Actuary, Church Pension Fund and Church Life Insurance Corporation, 20 Exchange Place, New York 5, N. Y.
Nov. 19, 1948	BAILEY, ARTHUR L., Assistant Actuary, Lumbermens Mutual Casualty Co., 4750 Sheridan Road, Chicago 40, Ill.
May 23, 1924	BAILEY, WILLIAM B., (Deceased)
*Nov. 20, 1924	BARBER, HARMON T., Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 14, 1947	BARKER, LORING M., Actuary, Firemen's Fund Insurance Group, 401 California Street, San Francisco 20, Calif.
*Nov. 20, 1942	BART, ROBERT D., Office Manager, West Bend Aluminum Co., 92 Island Avenue, West Bend, Wis.
*Nov. 18, 1932	BARTER, JOHN L., Vice-President, Hartford Accident & Indemnity Co., 690 Asylum Avenue, Hartford 15, Conn.
*Nov. 13, 1931	BATHO, ELGIN R., Associate Actuary, Berkshire Life Insurance Co., 7 North Street, Pittsfield, Mass.
*Nov. 22, 1934	BERKELEY, ERNEST T., Actuary, Employers' Liability Assurance Corporation, Ltd., American Employers' Insurance Company and Employers' Fire Insurance Company, 110 Milk Street, Boston 7, Mass.
†	BLACK, S. BRUCE, President, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
Apr. 20, 1917	BLANCHARD, RALPH H., Professor of Insurance, Graduate School of Business, Columbia University, New York 27, N. Y.
†	BREIBY, WILLIAM, Vice-President, Pacific Mutual Life Insurance Company, 523 West 6th St., Los Angeles 14, Cal.
*Nov. 18, 1927	BROWN, F. STUART, Systems Analyst, American Insurance Group, 15 Washington Street, Newark 2, N. J.
Oct. 22, 1915	BROWN, HERBERT D., (Retired), Glenora-on-Lake Seneca, Dundee, New York.
†	BUCK, GEORGE B., Consulting Actuary, 150 Nassau Street, New York 38, N. Y.

FELLOWS

Admitted Apr. 20, 1917	BURHOP, WILLIAM H., Executive Vice-President, Employers Mutual Liability Insurance Company, 407 Grant Street, Wausau, Wis.
*Nov. 23, 1928	BURLING, WILLIAM H., Assistant Secretary, Group Department, The Travelers Insurance Company, 700 Main Street, Hartford 15, Conn.
*Nov. 19, 1929	CAHILL, JAMES M., Secretary, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 18, 1932	CAMERON, FREELAND R., Vice-President and Comptroller, American Title and Insurance Company, 37 N.E. First Avenue, Miami 32, Florida.
†	CAMMACK, EDMUND E., Vice-President and Actuary, Aetna Life Insurance Company, Hartford 15, Conn.
*Nov. 17, 1938	CARLETON, JOHN W., Actuary, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
*Nov. 21, 1930	CARLSON, THOMAS O., Actuary, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
Nov. 18, 1949	CLARKE, JOHN W., Associate Actuary, Life Actuarial Department, The Travelers Insurance Company, 700 Main St., Hartford, 15, Conn.
*Nov. 13, 1936	CLEARY, ARTHUR E., 102 Pierce Road, Watertown, Mass.
*Nov. 15, 1918	COATES, BARRETT N., Coates, Herfurth and England, Consulting Actuaries, 620 Market Street, San Francisco 4, Calif.
*Nov. 17, 1922	COATES, CLARENCE S., Third Vice-President, Lumbermens Mutual Casualty Company, 4750 Sheridan Road, Chicago 40, Ill.
Oct. 27, 1916	COGSWELL, EDMUND S., First Deputy Commissioner of Insurance Department of Banking and Insurance, Division of Insurance, 100 Nashua Street, Boston 14, Mass.
Feb. 19, 1915	COLLINS, HENRY, (Retired), Timberlane, Route 4, Easton, Md.
*Nov. 22, 1934	CONSTABLE, WILLIAM J., President and Treasurer, Excess Insurance Company of America, 99 John Street, New York 7, N. Y.
*Nov. 22, 1934	COOK, EDWIN A., Assistant General Manager and Secretary, Interboro Mutual Indemnity Insurance Company, 270 Madison Avenue, New York 16, N. Y.
†	COPELAND, JOHN A., Consulting Actuary, 1520-21 Candler Building, Atlanta, Ga.
*Nov. 18, 1925	CORCORAN, WILLIAM M., Partner, Wolfe, Corcoran & Linder, 116 John Street, New York 38, N. Y.
*Nov. 19, 1928	CRANE, HOWARD G., Vice-President and Treasurer, General Reinsurance Corporation, and North Star Reinsurance Corporation, 90 John Street, New York 38, N. Y.
*Nov. 22, 1948	CROUSE, CHARLES W., Consulting Actuary, C. E. Preslan & Co., Inc., 815 Superior Ave., N.E., Cleveland 14, Ohio.
*Nov. 18, 1932	DAVIES, E. ALFRED, (Retired), Falls Village, Conn.

FELLOWS

Admitted	
*Nov. 18, 1927	DAVIS, EVELYN M., Woodward, Ryan, Sharp & Davis, Consulting Actuaries, 55 Broadway, New York 6, N. Y.
Nov. 16, 1951	DOREMUS, FREDERICK W., Manager, Eastern Underwriters Association, 85 John St., New York 38, N. Y.
*Nov. 17, 1920	DORWEILER, PAUL, Actuary, Aetna Casualty & Surety Company, Hartford 15, Conn.
*Nov. 24, 1933	EDWARDS, JOHN, Actuary, Ontario Insurance Department, Parliament Buildings, Toronto 2, Ontario, Canada.
*Nov. 15, 1940	ELLIOTT, GEORGE B., General Manager, Pennsylvania Compensation Rating and Inspection Bureau, 620 Packard Building, 15th at Chestnut Street, Philadelphia 2, Pa.
*Nov. 17, 1922	ELSTON, JAMES S., Associate Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford, 15, Conn.
*Nov. 15, 1935	EPPINK, WALTER T., Vice-President and Actuary, Merchants Mutual Casualty Co., Merchants Mutual Building, Buffalo 5, N. Y.
†	FACKLER, EDWARD B., (deceased)
†	FALLOW, EVERETT S., (Retired), 28 Sunset Terrace, West Hartford, Conn.
*Nov. 15, 1940	FARLEY, JARVIS, Secretary and Actuary, Massachusetts Indemnity Insurance Co., 654 Beacon Street, Boston 15, Mass.
†	FARRER, HENRY, (Retired), 4 North Ave., Fanwood, N. J.
*Nov. 15, 1935	FITZHUGH, GILBERT W., Third Vice-President, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
Feb. 19, 1915	FONDILLER, RICHARD, Consulting Actuary, Woodward and Fondiller, 524 W. 57th Street, New York 19, N. Y.
*Nov. 18, 1927	FREDERICKSON, CARL H., Actuary, Canadian Underwriters Association, 55 York Street, Toronto, Canada.
*Nov. 22, 1934	FULLER, GARDNER V., Second Vice-President and Assistant Manager, New York Division, Lumbermens Mutual Casualty Co., and American Motorist Insurance Co., 342 Madison Ave., New York 17, N. Y.
*Nov. 19, 1948	GARDINER, JAMES B., Actuarial Consultant, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 20, 1924	GINSBURGH, HAROLD J., Vice-President, American Mutual Liability Insurance Co., 142 Berkeley Street, Boston 16, Mass.
*Nov. 21, 1930	GLENN, J. BRYAN, 5214 First Street, N.W., Washington 11, D.C.
*Nov. 13, 1931	GODDARD, RUSSELL P., Assistant to the President, Pennsylvania Manufacturers Association Casualty Insurance Co., Finance Building, Philadelphia, Pa.
†	GOODWIN, EDWARD S., 962 Main Street, East Hartford 8, Conn.
*Nov. 19, 1926	GRAHAM, CHARLES M., Chief Self-Insurance Examiner, New York State Workmen's Compensation Board, 55 Franklin Street, New York 13, N. Y.

FELLOWS

Admitted †	GRAHAM, WILLIAM J., Consultant, 1070 Park Ave., New York 18, N. Y.
†	GREENE, WINFIELD W., Executive Vice-President, General Reinsurance Corporation, 90 John Street, New York 38, N. Y.
†	HAMMOND, H. PIERSON, (Retired), 22 Vanderbilt Road, West Hartford, Conn.
*Nov. 17, 1950	HARWAYNE, FRANK, Chief Actuary, New York State Insurance Department, 61 Broadway, New York 6, N. Y.
Oct. 22, 1915	HATCH, LEONARD W., (Retired), 425 Pelham Manor Road, Pelham Manor, New York.
*Nov. 17, 1950	HAZAM, WILLIAM J., Assistant Actuary, American Mutual Liability Co., 142 Berkeley Street, Boston 16, Mass.
*Nov. 19, 1926	HAUGH, CHARLES J., Secretary, Compensation and Liability Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 16, 1951	HEWITT, CHARLES C., JR., New Jersey Manufacturers Casualty Insurance Co., 363 W. State Street, Trenton, N. J.
Oct. 22, 1915	HODGKINS, LEMUEL G., (Retired), 5 Whitman Road, Worcester 5, Mass.
Oct. 22, 1915	HOLLAND, CHARLES H., Suite 2633, 120 Broadway, New York 5, N. Y.
*Nov. 22, 1934	HOOVER, RUSSELL O., Actuary and Director of Examinations, State of Connecticut Insurance Department, Hartford 15, Conn.
*Nov. 17, 1950	HOPE, FRANCIS J., Rating and Research, Hartford Accident and Indemnity Co., 690 Asylum Avenue, Hartford 15, Conn.
Nov. 18, 1932	HUEBNER, SOLOMON STEPHEN, Professor of Insurance, University of Pennsylvania, Philadelphia 4, Pa.
*Nov. 14, 1947	HUGHEY, M. STANLEY, Assistant Actuary, Lumbermens Mutual Casualty Company, 4750 Sheridan Road, Chicago 40, Ill.
†	HUNTER, ARTHUR, (Retired), 124 Lloyd Road, Montclair, N. J.
Feb. 25, 1916	JACKSON, CHARLES W., (Retired), 74 Quimby Avenue, White Plains, N. Y.
*Nov. 19, 1929	JACKSON, HENRY HOLLISTER, Vice-President, National Life Insurance Co., 131 State Street, Montpelier, Vt.
*Nov. 14, 1941	JOHNSON, ROGER A., Actuary, Utica Mutual Insurance Co., 185 Genesee Street, Utica, N. Y.
*Nov. 16, 1939	JONES, HAROLD M., Group Research Division, John Hancock Mutual Life Insurance Company, 200 Berkeley Street, Boston 17, Mass.
*Nov. 19, 1926	KELTON, WILLIAM H., Associate Actuary, Life Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 21, 1919	KIRKPATRICK, A. LOOMIS, Manager Insurance Department, Chamber of Commerce of the U. S. A., 1615 H Street, N.W., Washington 6, D.C.
*Nov. 14, 1941	KOLE, MORRIS B., Principal Actuary, State Insurance Fund, 625 Madison Avenue, New York 22, N. Y.

FELLOWS

Admitted	
*Nov. 24, 1933	KORMES, MARK, Consulting Actuary, 285 Madison Avenue, New York 17, N. Y.
Nov. 23, 1928	KULP, CLARENCE A., Professor of Insurance, University of Pennsylvania, Logan Hall, 36th Street and Woodland Avenue, Philadelphia 4, Pa.
*Nov. 18, 1949	LA CROIX, HAROLD F., JR., Assistant Actuary, Accident and Group Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
Nov. 13, 1931	LA MONT, STEWART M., (Retired), Hotel Claremont, Berkeley, Calif.
*Nov. 24, 1933	LANGE, JOHN R., Commissioner of Insurance, State of Wisconsin, State Capitol, Madison 2, Wis.
†	LEAL, JAMES R., Vice-President and Secretary, Interstate Life and Accident Co., Interstate Building, 540 McCallie Avenue, Chattanooga 3, Tenn.
†	LESLIE, WILLIAM, General Manager, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 17, 1950	LESLIE, WILLIAM, JR., Assistant Manager, National Council on Compensation Insurance, 45 East 17th Street, New York 3, N. Y.
*Nov. 20, 1924	LINDER, JOSEPH, Consulting Actuary, Wolfe, Corcoran & Linder, 116 John Street, New York 38, N. Y.
*Nov. 17, 1950	LIVINGSTON, GILBERT R., Assistant Actuary, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 16, 1951	LONGLEY-COOK, LAURENCE H., Actuary, Insurance Company of North America, 1600 Arch Street, Philadelphia 1, Pa.
*Nov. 13, 1936	LYONS, DANIEL J., Second Vice-President, The Guardian Life Insurance Co. of America, 50 Union Square, New York 3, N. Y.
†	MAGOUN, WILLIAM N., (Retired), 390 Commonwealth Ave., Boston, Mass.
*Nov. 23, 1928	MARSHALL, RALPH M., Assistant Actuary, National Council on Compensation Insurance, 45 East 17th Street, New York 3, N. Y.
*Nov. 18, 1927	MASTERSON, NORTON E., Vice-President and Actuary, Hardware Mutual Casualty Co. and Hardware Dealers Mutual Fire Insurance Co., 200 Stronge Avenue, Stevens Point, Wis.
*Nov. 19, 1926	MATTHEWS, ARTHUR N., Associate Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
May 19, 1915	MAYCRINK, EMMA C., Secretary-Treasurer, Association of New York State Mutual Casualty Companies, 60 East 42nd Street, New York 17, N. Y.
*Nov. 15, 1935	MCCONNELL, MATTHEW H., General Accident Fire and Life Assurance Company, Fourth and Walnut Sts., Philadelphia 5, Pa.
*Oct. 31, 1917	MCMANUS, ROBERT J., Assistant Actuary, Casualty Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.

FELLOWS

Admitted		
†		MICHELbacher, G. F., President, Great American Indemnity Co., 1 Liberty Street, New York 5, N. Y.
*Nov. 17, 1938		MILLER, JOHN HAYNES, Vice-President and Actuary, Monarch Life Insurance Company, 365 State St., Springfield 1, Mass.
†		MILLIGAN, SAMUEL, Administrative Vice-President, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 18, 1937		MILLS, JOHN A., Vice-President and Actuary, Lumbermens Mutual Casualty Co. and American Motorists Insurance Co., Mutual Insurance Bldg., 4750 Sheridan Road, Chicago 40, Ill.
*Nov. 18, 1921		MONTGOMERY, VICTOR, President, Pacific Employers Insurance Co., 1033 So. Hope Street, Los Angeles 15, Calif.
†		MOORE, GEORGE D., Actuary, 13 Emerson Street, E. Orange, N. J.
*Nov. 17, 1920		MUELLER, LOUIS H., 2845 Lake Street, San Francisco 21, Calif.
†		MULLANEY, FRANK R., Financial Vice-President and Secretary, American Mutual Liability Insurance Co., 142 Berkeley Street, Boston 18, Mass.
*Nov. 17, 1950		MUNTERICH, GEORGE C., Actuary, Manhattan Casualty Co., 1775 Broadway, New York 19, N. Y.
May 28, 1920		MURPHY, RAY D., Executive Vice-President and Actuary, The Equitable Life Assurance Society of the U. S. A., 393 Seventh Avenue, New York 1, N. Y.
*Nov. 15, 1935		OBERHAUS, THOMAS M., Consulting Actuary, Woodward and Fouldner, 524 West 57th Street, New York 19, N. Y.
†		OLIFIERS, EDWARD, Consulting Actuary, Caixa Postal 8, Petropolis, Rio, Brazil.
†		ORR, ROBERT K., (Retired), 226 S. Logan Street, Lansing 15, Mich.
*Nov. 21, 1919		OUTWATER, OLIVE E., (Retired), 1337 Fargo Ave., Chicago 26, Ill.
*Nov. 21, 1930		PERRYMAN, FRANCIS S., Assistant U. S. Manager and Actuary, Royal-Liverpool Insurance Group, 150 William Street, New York 38, N. Y.
*Nov. 14, 1941		PETERS, STEFAN, Associate Professor of Insurance, School of Business Administration, 114 South Hall, University of California, Berkeley 4, Calif.
Nov. 19, 1926		PHILLIPS, JESSE S., Director, Great American Indemnity Co., 1 Liberty Street, New York 5, N. Y.
*Nov. 24, 1933		PICKETT, SAMUEL C., Rating Supervisor, Insurance Department, State of Connecticut, Hartford 2, Conn.
*Nov. 17, 1922		PINNEY, SYDNEY D., 290 Wolcott Hill Road, Wethersfield 9, Conn.
*Nov. 13, 1931		PRUITT, DUDLEY M., Actuary, General Accident Fire & Life Assurance Corp., Fourth & Walnut Sts., Philadelphia 5, Pa.
*Nov. 18, 1949		RESONY, JOHN A., Casualty Rate Analyst, Connecticut Insurance Department, State Office Building, Hartford 2, Conn.

FELLOWS

Admitted Nov. 16, 1951	RICE, HOMER D., General Manager, New York Fire Rating Organization, 85 John Street, New York 38, N. Y.
May 23, 1919	RICHARDSON, FREDERICK, (Retired), Coombe, Bradford Abbas, Sherborne, Dorset, England.
*Nov. 19, 1926	RICHTER, OTTO C., Chief Statistician, American Telephone & Telegraph Co., 195 Broadway, New York 7, N. Y.
May 24, 1921	RIEGEL, ROBERT, Professor of Statistics and Insurance, University of Buffalo, Buffalo 14, N. Y.
*Nov. 17, 1938	ROCHLIS, ELSIE, 872 East 24th Street, Brooklyn 10, N. Y.
*Nov. 14, 1947	RODERMUND, MATTHEW, Assistant Secretary, Interboro Mutual Indemnity Insurance Company, 270 Madison Avenue, New York 16, N. Y.
*Nov. 14, 1947	ROSENBERG, NORMAN, Executive Assistant, Farmers Insurance Group, 4680 Wilshire Blvd., Los Angeles 54, Calif.
*Nov. 14, 1947	ROWELL, JOHN H., Actuary, California Inspection Rating Bureau, 500 Sansome Street, San Francisco 11, Calif.
*Nov. 14, 1947	SALZMANN, RUTH E., Assistant Actuary, Hardware Mutual Casualty Company, Hardware Dealers Mutual Fire Insurance Co., 200 Strongs Ave., Stevens Point, Wis.
*Nov. 20, 1942	SATTERTHWAITE, FRANKLIN E., Quality Control Engineer, Chemical Division, General Electric Company, Pittsfield, Mass.
*Nov. 19, 1948	SCHLOSS, HAROLD W., Superintendent, Actuarial Department, Royal-Liverpool Insurance Group, 150 William Street, New York 38, N. Y.
*Nov. 18, 1937	SHAPIRO, GEORGE I., 934 E. 9th Street, Brooklyn 30, N. Y.
*Nov. 13, 1931	SILVERMAN, DAVID, Partner, Wolfe, Corcoran & Linder, 116 John Street, New York 38, N. Y.
*Nov. 24, 1933	SINNOTT, ROBERT V., Secretary, Hartford Accident and Indemnity Company, 690 Asylum Ave., Hartford 15, Conn.
*Nov. 19, 1929	SKELDING, ALBERT Z., Assistant Manager, National Council on Compensation Insurance, 45 East 17th St., New York 3, N. Y.
*Nov. 19, 1929	SKILLINGS, E. SHAW, Assistant Vice-President and Actuary, Allstate Insurance Co., 3245 W. Arthington St., Chicago 7, Ill.
*Nov. 18, 1932	SMICK, JACK J., Consulting Actuary, 38 Park Row, New York 7, N. Y.
*Nov. 15, 1940	SMITH, SEYMOUR E., Secretary, Casualty Department, The Travelers Insurance Co., Hartford 15, Conn.
Nov. 16, 1951	SNOW, A. J., Manager, Oregon Insurance Rating Bureau, 329 S.W. 5th Avenue, Portland, Ore.
*Nov. 24, 1933	St. JOHN, JOHN B., Consulting Actuary, Box 57, Penllyn, Pa.
Nov. 18, 1927	STONE, EDWARD C., Chairman of the Board, American Employers' Insurance Company, 33 Broad Street, Boston 9, Mass.

FELLOWS

Admitted	
*Nov. 17, 1920	TARBELL, THOMAS F., Chief Actuary, Casualty and Fire Actuarial Departments, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
†	THOMPSON, JOHN S., President, The Mutual Benefit Life Insurance Co., 300 Broadway, Newark 4, N. J.
†	TRAIN, JOHN L., President, Utica Mutual Insurance Co., 185 Genesee Street, Utica 2, N. Y.
Nov. 17, 1922	TRAVERSI, ANTONIO T., 9 Balfour Street, Wollstonecraft, Sydney, Australia.
*Nov. 19, 1948	TURNER, PAUL A., 553 So. St. Andrew Place, Los Angeles 5, Calif.
*Nov. 14, 1947	UHTHOFF, D. R., Associate Actuary, Employers Mutual Liability Insurance Co. of Wisconsin, Wausau, Wis.
*Nov. 23, 1928	VALERIUS, NELS M., Assistant Actuary, Aetna Casualty and Surety Co., Hartford 15, Conn.
*Nov. 21, 1919	VAN TUYL, HIRAM O., Superintendent, Internal Audit Department, London Guarantee & Accident Co., 55 Fifth Avenue, New York 3, N. Y.
*Nov. 16, 1951	VERGANO, ELIA (Retired), 390 Central Park, W., New York 25, N. Y.
Nov. 16, 1951	VINCENT, LEWIS A., General Manager, National Board of Fire Underwriters, 85 John Street, New York 38, N. Y.
*Nov. 17, 1920	WAITE, ALAN W., Secretary, The Aetna Casualty and Surety Co. 151 Farmington Ave., Hartford 15, Conn.
Nov. 16, 1951	WATSON, LEON A., General Manager, The Fire Insurance Rating Organization of New Jersey, 31 Clinton St., Newark, N. J.
*Nov. 14, 1947	WIEDER, JOHN W., JR., Aetna Casualty and Surety Company, Hartford 15, Conn.
*Nov. 15, 1935	WILLIAMS, HARRY V., Secretary, Hartford Accident and Indemnity Co., 690 Asylum Ave., Hartford 15, Conn.
Nov. 14, 1941	WILLIAMSON, W., RULON, Senior Actuarial Consultant, The Wyatt Company, 3400 Fairhill Drive, Washington 20, D.C.
*Nov. 13, 1931	WITTICK, HERBERT E., Assistant General Manager and Secretary, Pilot Insurance Co., 199 Bay Street, Toronto 1, Canada.
*Nov. 18, 1949	WOLFRUM, RICHARD J., Assistant Actuary, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
May 24, 1921	WOOD, ARTHUR B., Chairman of the Board, Sun Life Assurance Company of Canada, Montreal, Canada.
Nov. 16, 1951	WOODALL, JOHN P., Secretary, Southeastern Underwriters Association, 327 Trust Company of Georgia Bldg., Atlanta, Ga.

ASSOCIATES

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

Admitted	
May 23, 1924	ACKER, MILTON, Manager, General Liability Division, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 15, 1918	ACKERMAN, SAUL B., Professor of Insurance, School of Commerce, New York University, Washington Square, New York 6, N. Y.
*Nov. 16, 1939	AIN, SAMUEL N., Consulting Actuary, 120 Broadway, New York 5, N. Y.
Apr. 5, 1928	ALLEN, AUSTIN F., President, Texas Employers' Insurance Association, P.O. Box 2759, Dallas 1, Texas.
Nov. 15, 1918	ANKERS, R. E., Vice-President and Treasurer, Continental Life Insurance Co., Inc., Investment Building, 15 and K Streets., N.W., Washington 5, D.C.
*Nov. 21, 1930	ARCHIBALD, A. EDWARD, Vice-President and Actuary, Volunteer State Life Insurance Company, Chattanooga 1, Tenn.
*Nov. 16, 1951	BARKER, GORDON M., Actuarial Department, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston 17, Mass.
*Nov. 24, 1933	BARRON, JAMES C., Asst. Treasurer, General Reinsurance Corporation and North Star Reinsurance Corporation, 90 John Street, New York 38, N. Y.
*Nov. 23, 1928	BATEMAN, ARTHUR E., c/o Arthur Q. Melendy, Southboro, Mass.
*Nov. 15, 1940	BATHO, BRUCE, Associate Actuary, Life Insurance Company of Georgia, 573 W. Peachtree St., N.E., Atlanta 1, Georgia.
*Nov. 16, 1951	BEVAN, JOHN R., Actuarial Department, Liberty Mutual Insurance Company, 175 Berkeley Street, Boston, Mass.
*Nov. 18, 1925	BITTEL, W. HAROLD, Chief Actuary, Department of Banking and Insurance, Trenton 7, N. J.
Nov. 17, 1920	BLACK, NELLAS C., Manager, Statistical Department, Maryland Casualty Co., Baltimore 3, Md.
*Nov. 15, 1940	BLACKHALL, JOHN M., California-Western States Life Insurance Company, 10th & J Sts., Sacramento, Calif.
*Nov. 22, 1934	BOMSE, EDWARD L., Supt. New York Met. Special Risks, Royal Indemnity Co., 150 William Street, New York 38, N. Y.
*Nov. 23, 1928	BOWER, P. S., Assistant General Manager and Treasurer, The Great-West Life Assurance Company, Winnipeg, Manitoba, Canada.
*Nov. 17, 1950	BOYAJIAN, JOHN H., Assistant Actuary, National Council on Compensation Insurance, 45 East 17th St., New York 3, N. Y.
*Nov. 16, 1951	BRINDISE, RALPH S., Actuarial Department, Kemper Insurance, 4750 Sheridan Road, Chicago 40, Ill.
*Nov. 15, 1918	BRUNNQUELL, HELMUTH G., (Retired), 1013 East Circle Drive, Milwaukee 11, Wis.

ASSOCIATES

Admitted	
*Oct. 22, 1915	BUFFLER, LOUIS, Underwriting Director, The State Insurance Fund, 625 Madison Avenue, New York 22, N. Y.
*Nov. 20, 1924	BUGBEE, J. M., Manager, Automobile Department, Maryland Casualty Co., Box 1228, Baltimore 3, Md.
Mar. 31, 1920	BURT, MARGARET A., Office of George B. Buck, Consulting Actuary, 150 Nassau Street, New York 38, N. Y.
Nov. 17, 1922	CAVANAUGH, L. D., President, Federal Life Insurance Co., 168 N. Michigan Avenue, Chicago 1, Ill.
*Nov. 18, 1927	CHEN, S. T., Actuary, China United Assurance Society, 104 Bubbling Well Road, Shanghai, China.
*Nov. 24, 1933	CRAWFORD, W. H., Treasurer, Industrial Indemnity Co., 155 Sansome Street, San Francisco 4, Calif.
*Nov. 18, 1932	CRIMMINS, JOSEPH B., Assistant Actuary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 17, 1950	CRITCHLEY, DOUGLAS, Actuarial Department Royal-Liverpool Group, 150 William Street, New York 38, N. Y.
*Nov. 18, 1925	DAVIS, MALVIN E., Actuary, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 24, 1933	DAVIS, REGINALD S., 878 El Dorado Way, Sacramento, Calif.
*Nov. 14, 1941	DOWLING, WILLIAM F., Vice-President and General Manager, Lumber Mutual Casualty Co., 260 Fourth Ave., New York 10, N. Y.
June 5, 1925	EGER, FRANK A., Secretary-Comptroller, Indemnity Insurance Co. of North America, 1600 Arch Street, Philadelphia 1, Pa.
*Nov. 16, 1951	FAIRBANKS, ALFRED V., Actuarial Supervisor, Monarch Life Insurance Company, Springfield, Mass.
*Nov. 16, 1923	FITZ, L. LEROY, Group Department, John Hancock Mutual Life Insurance Company, Boston 17, Mass.
*Nov. 16, 1923	FLEMING, FRANK A., General Manager, Mutual Insurance Rating Bureau, 60 East 42nd Street, New York 17, N. Y.
*Nov. 13, 1936	FRUECHTEMEYER, FRED J., Assistant to Comptroller, The Andrew Jergens Company, 2535 Spring Grove Ave., Cincinnati 14, Ohio.
*Nov. 19, 1929	FURNIVALL, MAURICE L., Associate Actuary, Accident and Group Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 14, 1947	GEORGE, HAROLD J., Assistant Actuary, National Life Insurance Co., 131 State Street, Montpelier, Vt.
*Nov. 18, 1932	GETMAN, RICHARD A., The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Nov. 17, 1922	GIBSON, JOSEPH P., JR., Executive Vice-President, American Mutual Reinsurance Co., 919 North Michigan Ave., Chicago 11, Ill.
*Nov. 16, 1923	GILDEA, JAMES F., The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.

ASSOCIATES

Admitted	
*Nov. 14, 1947	GINGERY, STANLEY W., Assistant Actuary, The Prudential Insurance Co., Newark, N. J.
*Nov. 16, 1951	GRAVES, CLYDE H., Actuary, Mutual Insurance Rating Bureau and Mutual Insurance Advisory Association, 60 East 42nd Street, New York 17, N. Y.
*Nov. 18, 1927	GREEN, WALTER C., Consulting Actuary, Continental Bank Building, Salt Lake City, Utah.
*Nov. 15, 1940	GROSSMAN, ELI A., Actuary, Union Labor Life Insurance Co., 200 East 70th Street, New York 21, N. Y.
*Nov. 15, 1935	GUERTIN, ALFRED N., Actuary, American Life Convention, 230 N. Michigan Avenue, Chicago 1, Ill.
*Nov. 16, 1939	HAGEN, OLAF E., Metropolitan Life Insurance Company, 1 Madison Avenue, New York 10, N. Y.
*Nov. 18, 1921	HAGGARD, ROBERT E., Supervisor, Permanent Disability Rating Bureau, Industrial Accident Commission, 965 Mission Street, San Francisco 3, Calif.
*Nov. 17, 1950	HALEY, JAMES B., JR., Fireman's Fund Group, 401 California Street, San Francisco, Calif.
*Nov. 17, 1922	HALL, HARTWELL L., Associate Actuary, Connecticut Insurance Department, 165 Capitol Avenue, Hartford 2, Conn.
*Nov. 13, 1936	HAM, HUGH P., Assistant General Manager, The British American Assurance Company, 40 Scott St., Toronto 1, Canada.
Mar. 24, 1932	HARRIS, SCOTT, Executive Vice-President, Joseph Froggatt & Co., Inc., 74 Trinity Place, New York 6, N. Y.
*Mar. 25, 1924	HART, WARD VAN B., Associate Actuary, Connecticut General Life Insurance Co., 55 Elm Street, Hartford 15, Conn.
Nov. 21, 1919	HAYDON, GEORGE F., Manager Emeritus, Wisconsin Compensation Rating & Inspection Bureau, 715 N. Van Buren Street, Milwaukee 2, Wis.
Nov. 17, 1927	HIPP, GRADY H., Executive Vice-President, Liberty Life Insurance Co., Greenville, S. C.
*Nov. 16, 1945	HOLZINGER, ERNEST, Actuary, Pension Planning Company, 30 Broad Street, New York 4, N. Y.
Nov. 19, 1929	JACOBS, CARL N., President, Hardware Mutual Casualty Co. and Hardware Dealers Mutual Fire Insurance Co., 200 Strong's Avenue, Stevens Point, Wis.
*Nov. 18, 1921	JENSEN, EDWARD S., Assistant Vice-President, Group Department, Occidental Life Insurance Co. of California, 1151 So. Broadway, Los Angeles 55, Calif.
*Nov. 16, 1951	JOHE, RICHARD L., Actuarial Department, U. S. Fidelity and Guaranty Co., Baltimore, Md.
Nov. 21, 1930	JONES, H. LLOYD, United States Manager and Attorney, Phoenix-London Group, 55 Fifth Avenue, New York 3, N. Y.
*Nov. 21, 1919	JONES, LORING D., (Retired), 64 Raymond Avenue, Rockville Centre, Long Island, N. Y.

ASSOCIATES

Admitted	
*Nov. 17, 1922	KIRK, CARL L., Deputy U.S. Manager, Zurich General Accident & Liability Insurance Co., 135 South LaSalle Street, Chicago 3, Ill.
*Nov. 15, 1935	KITZROW, E. W., Hardware Mutual Casualty Co., Raymond-Commerce Building, Newark, N. J.
*Nov. 14, 1947	LUFKIN, ROBERT W., Statistician, Liberty Mutual Insurance Co., 175 Berkeley Street, Boston 17, Mass.
*Nov. 13, 1931	MACKEEN, HAROLD E., Fire Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
Mar. 24, 1932	MAGRATH, JOSEPH J., Administrative Assistant, Chubb & Son, 90 John Street, New York 38, N. Y.
*Nov. 18, 1925	MALMUTH, JACOB, Associate Examiner, New York State Insurance Department, 61 Broadway, New York 6, N. Y.
Mar. 24, 1927	MARSH, CHARLES V. R., (Retired), 617 E. Surf Road, Ocean City, N. J.
*Nov. 13, 1936	MAYER, WILLIAM H., JR., Associate Manager Group Contract Bureau, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.
*Nov. 17, 1950	MAYERSON, ALLEN L., Principal Actuary, New York State Insurance Department, 61 Broadway, New York 6, N. Y.
*Nov. 17, 1922	MCIVER, R. A., Actuary, Washington National Insurance Co., 1630 Chicago Avenue, Evanston, Ill.
*Nov. 17, 1950	MENZEL, HENRY W., Actuarial Department, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 13, 1931	MILLER, HENRY C., Comptroller-Actuary, California State Compensation Insurance Fund, 450 McAllister Street, San Francisco 1, Calif.
*Nov. 19, 1926	MILNE, JOHN L., Vice-President and Actuary, Philadelphia Life Insurance Company, 111 North Broad Street, Philadelphia 7, Pa.
Nov. 17, 1922	MONTGOMERY, JOHN C., Secretary and Treasurer, Bankers Indemnity Insurance Co., Treasurer, The American Insurance Co., 15 Washington Street, Newark 1, N. J.
May 25, 1923	MOORE, JOSEPH P., Mutual Life and Citizens Assurance Co., Ltd., P.O. Box 1770, Place D'Arms, Montreal, Canada.
*Nov. 17, 1950	MURRIN, THOMAS E., Assistant Actuary, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
*Nov. 18, 1937	MYERS, ROBERT J., Chief Actuary, Social Security Administration, Washington 25, D.C.
*Nov. 15, 1936	NELSON, S. TYLER, Deputy in Charge Rating Division, Department of Insurance, State Capitol Building, Springfield, Ill.
*Oct. 27, 1916	NEWELL, WILLIAM, (Retired), 1225 Park Avenue, New York 28, N. Y.
*Nov. 18, 1925	NICHOLSON, EARL, Actuary, Joseph Froggatt & Co., Inc., 74 Trinity Place, New York 6, N. Y.

ASSOCIATES

Admitted May 23, 1919	OTTO, WALTER E., President, Michigan Mutual Liability Co., Associated General Fire Co., Mutual Building, 28 West Adams Avenue, Detroit 26, Mich.
*Nov. 19, 1926	OVERHOLSER, DONALD M., Office of George B. Buck, Consulting Actuary, 150 Nassau Street, New York 7, N. Y.
Nov. 20, 1924	PENNOCK, RICHARD M., (Retired), 12 Lodges Lane, Cynwood, Pa.
*Nov. 14, 1947	PERRY, ROBERT C., Vice-President and Actuary, State Farm Life Insurance Company, Bloomington, Ill.
*Nov. 16, 1951	PETZ, EARL F., JR., Procedures Department, Lumbermen's Mutual Casualty Co., Chicago 40, Ill.
Nov. 19, 1929	PHILLIPS, JOHN H., Vice-President and Actuary, Employers' Mutual Liability Insurance Co., 407 Grant Street, Wausau, Wis.
*Nov. 17, 1920	PIKE, MORRIS, Second Vice-President, John Hancock Mutual Life Insurance Co., Boston 17, Mass.
*Nov. 23, 1928	PIPER, K. B., Vice-President, Provident Life and Accident Insurance Co., 721 Broad Street, Chattanooga 2, Tenn.
*Nov. 17, 1922	POORMAN, WILLIAM F., President, Central Life Assurance Society (Mutual), Fifth and Grand Avenues, Des Moines 6, Iowa.
*Nov. 13, 1936	POTOFSKY, SYLVIA, Senior Actuary, The State Insurance Fund, 625 Madison Avenue, New York 22, N. Y.
*Nov. 15, 1918	RAYWID, JOSEPH, Consultant, Woodward and Fondiller, Consulting Actuaries, 524 West 57th Street, New York 19, N. Y.
Nov. 19, 1932	RICHARDSON, HARRY F., General Manager, National Council on Compensation Insurance, 45 East 17th Street, New York 3, N. Y.
*Nov. 18, 1932	ROBERTS, JAMES A., Accident and Group Actuarial Department, The Travelers Insurance Co., 700 Main St., Hartford 15, Conn.
*Nov. 18, 1927	SARASON, HARRY M., Statistician, Occidental Life Insurance Company of California, Box 2101, Terminal Annex, Los Angeles 54, Calif.
Nov. 16, 1923	SAWYER, ARTHUR, Actuarial Department, Royal-Liverpool Insurance Group, 150 William Street, New York 38, N. Y.
*Nov. 14, 1947	SCAMMON, LAWRENCE W., Actuary, Massachusetts Automobile Rating and Accident Prevention Bureau, Massachusetts Workmen's Compensation Rating and Inspection Bureau, 89 Broad Street, Boston 10, Mass.
*Nov. 14, 1947	SCHWARTZ, MAX J., Associate Actuary (Casualty), New York State Insurance Department, Albany 1, N. Y.
*Nov. 20, 1930	SEVILLA, EXEQUIEL S., Manager and Actuary, National Life Insurance Co. of the Philippines, Regina Building, P.O. Box 2056, Manila, Philippines.
*Nov. 20, 1924	SHEPPARD, NORRIS E., Professor of Mathematics, University Toronto, Toronto 5, Canada.
Nov. 15, 1918	SIBLEY, JOHN L., (Retired), 225 Amesbury Road, Haverhill, Mass.
*Nov. 16, 1951	SIMON, LEROY, J., Associate Actuary, Mutual Service Casualty Insurance Company, 1923 University Ave., St. Paul 4, Minn.

ASSOCIATES

Admitted	
*Nov. 18, 1921	SMITH, ARTHUR G., Associate Manager, Compensation Insurance Rating Board, Pershing Square Bldg., 125 Park Avenue, New York 17, N. Y.
*Nov. 19, 1926	SOMERVILLE, WILLIAM F., Secretary and Director, St. Paul-Mercury Indemnity Co., St. Paul 2, Minn.
*Nov. 18, 1925	SOMMER, ARMAND, Executive Assistant Vice President, Continental Casualty Co., 910 So. Michigan Avenue, Chicago 5, Ill.
*Nov. 15, 1918	SPENCER, HAROLD S., (Retired), 8 Chelsea Lane, West Hartford, Conn.
Nov. 20, 1924	STELLWAGEN, H. P., Executive Vice-President, Indemnity Insurance Company of North America, 1600 Arch Street, Philadelphia 1, Pa.
*Nov. 16, 1923	STOKE, KENDRICK, Actuary, Michigan Mutual Liability Company, 28 W Adams, Detroit 26, Mich.
*Nov. 21, 1930	SULLIVAN, WALTER F., Assistant Actuary, State Compensation Insurance Fund, 450 McAllister Street, San Francisco 1, Calif.
*Nov. 21, 1919	TRENCH, FREDERICK H., Manager, Underwriting Department, Utica Mutual Insurance Co., 185 Genesee Street, Utica 1, N. Y.
*Nov. 17, 1950	TRIST, JOHN A. W., Statistical Department, Lumbermens Mutual Casualty Company, Mutual Insurance Bldg., 4750 Sheridan Road, Chicago 40, Ill.
*Nov. 20, 1924	UHL, M. ELIZABETH, National Bureau of Casualty Underwriters, 60 John Street, New York 38, N. Y.
May 23, 1919	WARREN, CHARLES S., Secretary, Massachusetts Automobile Rating and Accident Prevention Bureau, 89 Broad Street, Boston 10, Mass.
*Nov. 18, 1932	WEINSTEIN, MAX S., Actuary, New York State Employees' Retirement System, 256 Washington Avenue, Albany 1, N. Y.
*Nov. 18, 1925	WELLMAN, ALEXANDER C., Vice-President, Protective Life Insurance Co., Birmingham, Ala.
*Nov. 21, 1930	WELLS, WALTER I., Assistant Actuary, State Mutual Life Assurance Co., 340 Main Street, Worcester 8, Mass.
*Nov. 16, 1951	WERMEL, M. T., Chief, Financial and Actuarial Branch, U.S. Department of Labor, Bureau of Employment Security, Washington 25, D. C.
Mar. 21, 1929	WHEELER, CHARLES A., (Retired), 1023 Hillcrest Road, Ridgewood, N. J.
*Nov. 18, 1927	WHITBREAD, F. G., Vice-President, Reliance Life Insurance Company, Room 412, Farmers Bank Building, Pittsburgh 22, Pa.
*Nov. 19, 1948	WHITE, AUBREY, Osteimer & Co., 1500 Chestnut St., Philadelphia, Pa.
*Nov. 16, 1939	WITTLAKE, J. CLARKE, Assistant to President, Business Men's Assurance Company, B.M.A. Building, Kansas City 10, Mo.
*Oct. 22, 1915	WOOD, DONALD M., Partner, Childs & Wood, 175 W. Jackson Blvd., Chicago 4, Ill.
*Nov. 18, 1937	WOOD, DONALD M., JR., Childs & Wood, 175 West Jackson Blvd., Chicago 4, Ill.

Admitted	
*Nov. 18, 1927	WOOD, MILTON J., Chief Actuary, Life, Accident and Group Actuarial Department, The Travelers Insurance Co., 700 Main Street, Hartford 15, Conn.
*Oct. 22, 1915	WOODMAN, CHARLES E., (Retired), The Brunswick, Waterville, N. Y.
*Nov. 22, 1934	WOODWARD, BARBARA H., The Rueben H. Donnelley Corporation, 305 East 45th Street, New York, N. Y.
*Nov. 17, 1950	WOODY, JOHN C., Actuarial Statistician, American Telephone and Telegraph Company, 195 Broadway, New York 7, N. Y.
*Nov. 18, 1925	WOOLERY, JAMES MYRON, Vice-President and Actuary, Occidental Life Insurance Company, Raleigh, N. C.

SCHEDULE OF MEMBERSHIP, NOVEMBER 16, 1951

	Fellows	Associates	Total
Membership, November 17, 1950.....	157	121	278
Additions:			
By Election.....	6	...	6
By Reinstatement.....
By Examination.....	3	9	12
	166	130	296
Deductions:			
By Death.....	6	...	6
By Withdrawal.....
By Transfer from Associate to Fellow..	...	3	3
Membership, November 16, 1951.....	160	127	287

OFFICERS OF THE SOCIETY

Since Date of Organization

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

Secretary-Treasurer

1914-1917 *C. E. Scattergood

1918-1951 R. Fondiller

Editor†

1914	W. W. Greene
1915-1917	R. Fondiller
1918	W. W. Greene
1919-1921	G. F. Michelbacher
1922-1923	O. E. Outwater
1924-1932	R. J. McManus
1933-1943	*C. W. Hobbs
1944-1951	E. C. Maycrink

Librarian†

1914	W. W. Greene
1915	R. Fondiller
1916-1921	L. I. Dublir
1922-1924	*E. R. Hardy
1925-1937	W. Breiby
1937-1947	T. O. Carlson
1948-1950	*S. M. Ros
1951	Gilbert R. Livingston
	<i>Chairman—Examination Comm.</i>
1949-1951	Roger A. Johnson

*Deceased.

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

FELLOWS WHO HAVE DIED

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

Admitted		Died
May 23, 1924	William B. Bailey	Jan. 10, 1952
†	Roland Benjamin	July 2, 1949
May 24, 1921	Edward J. Bond	Nov. 12, 1941
May 19, 1915	Thomas Bradshaw	Nov. 10, 1939
June 5, 1925	William Brosmith	Aug. 22, 1937
†	William A. Budlong	June 4, 1934
Nov. 18, 1932	Charles H. Burhans	June 15, 1942
Feb. 19, 1915	F. Highlands Burns	Mar. 30, 1935
†	Raymond V. Carpenter	Mar. 11, 1947
Feb. 19, 1915	Gorden Case	Feb. 4, 1920
Nov. 23, 1928	Walter P. Comstock	May 11, 1951
†	Charles T. Conway	July 23, 1921
†	Walter G. Cowles	May 30, 1942
†	James D. Craig	May 27, 1940
†	James McIntosh Craig	Jan. 20, 1922
May 26, 1916	Frederick S. Crum	Sept. 2, 1921
†	Alfred Burnett Dawson	June 21, 1931
†	Miles Menander Dawson	Mar. 27, 1942
†	Elmer H. Dearth	Mar. 26, 1947
†	Eckford C. DeKay	Jul. 31, 1951
May 19, 1915	Samuel Deutschberger	Jan. 18, 1929
†	Ezekiel Hinton Downey	July 9, 1922
May 19, 1915	Earl O. Dunlap	July 5, 1944
†	David Parks Fackler	Oct. 30, 1924
Feb. 19, 1915	Claude W. Fellows	July 15, 1938
†	Benedict D. Flynn	Aug. 22, 1944
†	Charles S. Forbes	Oct. 2, 1943
May 26, 1916	Lee K. Frankel	July 25, 1931
†	Charles H. Franklin	May 1951
Feb. 25, 1916	Joseph Froggatt	Sept. 28, 1940
†	Harry Furze	Dec. 26, 1945
Feb. 19, 1915	Fred S. Garrison	Nov. 14, 1949
†	Theodore E. Gaty	Aug. 22, 1925
May 19, 1915	James W. Glover	July 15, 1941
Oct. 22, 1915	George Graham	Apr. 15, 1937
Oct. 22, 1915	Thompson B. Graham	July 24, 1946
May 25, 1923	William A. Granville	Feb. 4, 1943
†	William H. Gould	Oct. 28, 1936
†	Robert Cowen Lees Hamilton	Nov. 15, 1941
Oct. 27, 1916	Edward R. Hardy	June 29, 1951
Nov. 21, 1919	Robert Henderson	Feb. 16, 1942
†	Robert J. Hillas	May 17, 1940
Nov. 15, 1918	Frank Webster Hinsdale	Mar. 18, 1932
May 23, 1924	Clarence W. Hobbs	July 21, 1944
Nov. 19, 1926	Charles E. Hodges	Jan. 22, 1937
†	Frederick L. Hoffman	Feb. 23, 1946
Nov. 21, 1919	Carl Hookstadt	Mar. 10, 1924
†	Charles Hughes	Aug. 27, 1948
Nov. 19, 1929	Robert S. Hull	Nov. 30, 1947
†	Burritt A. Hunt	Sept. 3, 1943

FELLOWS WHO HAVE DIED—*Continued*

Admitted		Died
Nov. 28, 1921	William Anderson Hutcheson	Nov. 19, 1942
May 19, 1915	William C. Johnson	Oct. 7, 1943
Nov. 23, 1928	F. Robertson Jones	Dec. 26, 1941
Nov. 18, 1921	Thomas P. Kearney	Feb. 11, 1928
Nov. 19, 1926	Gregory Cook Kelly	Sept. 11, 1948
Oct. 22, 1915	Virgil Morrison Kime	Oct. 15, 1918
†	Edwin W. Kopf	Aug. 3, 1933
Feb. 17, 1915	John M. Laird	June 20, 1942
Feb. 19, 1915	Abb Landis	Dec. 9, 1937
Nov. 17, 1922	Arnette Roy Lawrence	Dec. 1, 1942
Nov. 18, 1921	James Fulton Little	Aug. 11, 1938
Nov. 23, 1928	Edward C. Lunt	Jan. 13, 1941
Feb. 19, 1915	Harry Lubin	Dec. 20, 1920
Nov. 16, 1923	D. Ralph McClurg	Apr. 27, 1947
May 23, 1919	Alfred McDougald	July 28, 1944
Feb. 15, 1915	Franklin B. Mead	Nov. 29, 1933
Apr. 20, 1917	Marcus Melzer	Mar. 27, 1931
†	David W. Miller	Jan. 18, 1936
†	James F. Mitchell	Feb. 9, 1941
†	Henry Moir	June 8, 1937
Nov. 19, 1926	William L. Mooney	Oct. 21, 1948
Feb. 19, 1915	William J. Montgomery	Aug. 20, 1915
May 19, 1915	Edward Bontecou Morris	Dec. 19, 1929
†	Albert H. Mowbray	Jan. 7, 1949
†	Lewis A. Nicholas	Apr. 21, 1940
†	Stanley L. Otis	Oct. 12, 1937
Nov. 13, 1926	Bertrand A. Page	July 30, 1941
Nov. 18, 1921	Sanford B. Perkins	Sept. 16, 1945
Nov. 15, 1918	William Thomas Perry	Oct. 25, 1940
†	Edward B. Phelps	July 24, 1915
†	Charles Grant Reiter	July 30, 1937
†	Charles H. Remington	Mar. 21, 1938
Nov. 17, 1943	Samuel M. Ross	July 24, 1951
†	Isaac M. Rubinow	Sept. 1, 1936
†	Harwood Eldridge Ryan	Nov. 2, 1930
†	Arthur F. Saxton	Feb. 26, 1927
†	Emil Scheitlin	May 2, 1946
†	Leon S. Senior	Feb. 3, 1940
April 20, 1917	Charles Gordon Smith	June 22, 1938
Feb. 19, 1915	John T. Stone	May 9, 1920
Feb. 25, 1916	Wendell Melville Strong	Mar. 30, 1942
Oct. 22, 1915	William R. Strong	Jan. 10, 1946
†	Robert J. Sullivan	July 19, 1934
Nov. 22, 1934	Walter H. Thompson	May 25, 1935
Nov. 18, 1921	Guido Toja	Feb. 28, 1933
Nov. 15, 1935	Harry V. Waite	Aug. 14, 1951
Nov. 18, 1925	Lloyd A. H. Warren	Sept. 30, 1949
May 23, 1919	Archibald A. Welch	May 8, 1945

FELLOWS WHO HAVE DIED—Continued

<i>Admitted</i>		<i>Died</i>
Nov. 19, 1926	Roy A. Wheeler	Aug. 26, 1932
†	Albert W. Whitney	July 27, 1943
†	Lee J. Wolfe	Apr. 28, 1949
†	S. Herbert Wolfe	Dec. 31, 1927
†	Joseph H. Woodward	May 15, 1928
†	William Young	Oct. 23, 1927

ASSOCIATES WHO HAVE DIED

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

CONSTITUTION

(AS AMENDED NOVEMBER 17, 1950)

ARTICLE I.—*Name.*

This organization shall be called the CASUALTY ACTUARIAL SOCIETY.

ARTICLE II.—*Object.*

The object of the Society shall be the promotion of actuarial and statistical science as applied to the problems of insurance, other than life insurance, by means of personal intercourse, the presentation and discussion of appropriate papers, the collection of a library and such other means as may be found desirable.

The Society shall take no partisan attitude, by resolution or otherwise, upon any question relating to insurance.

ARTICLE III.—*Membership.*

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

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

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

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

ARTICLE IV.—*Officers and Council.*

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

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

The President, Vice-Presidents, and the Secretary-Treasurer shall be elected by a majority ballot at the annual meeting for the term of one year and three

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

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

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

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

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

ARTICLE VII.—*Meetings.*

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

ARTICLE VIII.—*Quorum.*

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

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

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

ARTICLE X.—*Amendments.*

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

BY-LAWS

(AS AMENDED NOVEMBER 17, 1950)

ARTICLE I.—*Order of Business.*

At a meeting of the Society the following order of business shall be observed unless the Society votes otherwise for the time being:

1. Calling of the roll.
2. Address or remarks by the President.
3. Minutes of the last meeting.
4. Report by the Council on business transacted by it since the last meeting of the Society.
5. New Membership.
6. Reports of officers and committees.
7. Election of officers and Council (at annual meetings only).
8. Unfinished business.
9. New business.
10. Reading of papers.
11. Discussion of papers.

ARTICLE II.—*Council Meetings.*

Meetings of the Council shall be called whenever the President or three members of the Council so request, but not without sending notice to each member of the Council seven or more days before the time appointed. Such notice shall state the objects intended to be brought before the meeting, and should other matter be passed upon, any member of the Council shall have the right to re-open the question at the next meeting.

ARTICLE III.—*Duties of Officers.*

The President, or, in his absence, one of the Vice-Presidents, shall preside at meetings of the Society and of the Council. At the Society meetings the presiding officer shall vote only in case of a tie, but at the Council meetings he may vote in all cases.

The Secretary-Treasurer shall keep a full and accurate record of the proceedings at the meetings of the Society and of the Council, send out calls for the said meetings, and, with the approval of the President and Council, carry on the correspondence of the Society. Subject to the direction of the Council, he shall have immediate charge of the office and archives of the Society.

The Secretary-Treasurer shall also send out calls for annual dues and acknowledge receipt of same; pay all bills approved by the President for expenditures authorized by the Council of the Society; keep a detailed account of all receipts and expenditures, and present an abstract of the same at the annual meetings, after it has been audited by a committee appointed by the President.

The Editor shall, under the general supervision of the Council, have charge of all matters connected with editing and printing the Society's publications. The *Proceedings* shall contain only the proceedings of the meetings, original papers or reviews written by members, discussions on said papers and other matter expressly authorized by the Council.

The Librarian shall, under the general supervision of the Council, have charge of the books, pamphlets, manuscripts and other literary or scientific material collected by the Society.

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

ARTICLE IV.—*Dues.*

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

It shall be the duty of the Secretary-Treasurer to notify by mail any Fellow or Associate whose dues may be six months in arrears, and to accompany such notice by a copy of this article. If such Fellow or Associate shall fail to pay his dues within three months from the date of mailing such notice, his name shall be stricken from the rolls, and he shall thereupon cease to be a Fellow or Associate of the Society. He may, however, be reinstated by vote of the Council, and upon payment of arrears of dues.

ARTICLE V.—*Designation by Initials.*

Fellows of the Society are authorized to append to their names the initials F.C.A.S.; and Associates are authorized to append to their names the initials A.C.A.S.

ARTICLE VI.—*Amendments.*

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

SYLLABUS OF EXAMINATIONS

(Effective 1948 and Thereafter)

ASSOCIATESHIP

<i>Part</i>	<i>Section</i>	<i>Subject</i>
I	1	Descriptive and Analytical Statistics.
	2	Compound Interest and Annuities Certain.
II	3	Differential and Integral Calculus.
	4	Calculus of Finite Differences.
III	5	Probabilities.
	6	Life Contingencies, Life Annuities and Life Assurances.
IV	7	Policy Forms and Underwriting Practice in Casualty Insurance.
	8	Casualty Insurance Rate Making Methods.

FELLOWSHIP

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

RULES REGARDING EXAMINATIONS FOR ADMISSION TO THE CASUALTY ACTUARIAL SOCIETY

1. Dates of Examination.

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

2. Filing of Application.

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

3. Fees.

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

4. Associateship and Fellowship Examinations.

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

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

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

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

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

<i>Parts Passed Under Old Syllabus (Effective Prior to 1948)</i>	<i>Parts Credited Under New Syllabus (Effective in 1948)</i>
Associateship, Part I	Associateship, Part I—Section 2
“ “ II	“ “ II
“ “ III	“ “ I—Section 1
“ “ IV	“ “ III
“ “ V	“ “ IV
Fellowship, Part I	Fellowship, Part I
“ “ II	“ Parts III & IV—Section 15
“ “ III	“ Parts II & IV—Section 16

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

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

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

6. Waiver of Examinations for Associate.

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

1. PARTIAL WAIVER

In case of a candidate who, for a period of at least two years preceding date of application, has been in responsible charge of the actuarial or statistical department of an insurance organization other than a life insurance organization and who has passed examinations of other recognized

Actuarial Societies at least equivalent to Parts I, II and III of the Associateship examinations of this Society, the passing of such parts of the Associateship examinations of this Society will be waived upon approval of the Examination Committee.

2. FULL WAIVER

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

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

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

(d) The candidate shall have submitted a thesis approved by the Committee on Papers. Such thesis must show evidence of original research and knowledge of insurance (other than life insurance) and shall not consist of data of an historical nature.

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

LIBRARY

The Society's library contains all of the references listed in the Recommendations for Study, including the books noted as being out of print with the exception of certain periodicals and publications subject to periodical revision. It also contains numerous other works on actuarial matters. Registered students may have access to the library by receiving from the Society's Secretary-Treasurer the necessary credentials. Books may be withdrawn from the library for a period of two weeks upon payment of a small service fee and necessary postage.

The library is in the immediate charge of Miss Mabel B. Swerig, Librarian of the Insurance Society of New York, 107 William Street, New York 38, N. Y.