A Study of Workmen's Compensation Schedule "W" and the Problems Incident Thereto.

BY

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The enactment of workmen's compensation laws in this country imposed upon the insurance departments of a certain few but relatively important states a new function, that of approving, as to their adequacy and non-discriminatory nature, premium rates in connection with a line of business under which American experience results were not available. As such supervision required a close scrutiny of the various expense items and a determination of the amount of ultimate losses some method of accumulating actual experience was necessary. To meet this requirement a form of report known as Schedule "W" was devised for use in certain states only. In each instance it was confined to the workmen's compensation business of such state and was similar in form to pages 2, 3, 5, 8 and 9 of the annual statement.

This report has now been prepared for the states of Massachusetts and Wisconsin for four years and for New York for two years and consequently ample opportunity has been afforded for studying the results obtained with the idea of so rearranging the schedule as to increase the value of the statistics resulting from its compilation. To avoid unnecessary discussion of minor details, which may be peculiar to any one state, and to make clear the suggested arrangement a schedule in which the proposed changes are incorporated has been prepared. The intent is that the form shall meet the requirements of supervisory bodies, the public and the reporting companies. Before treating the schedule in detail a preliminary consideration of the underlying principles involved in the suggested arrangement is essential.

Because of the technical nature of the record it should set forth the required information clearly, concisely and in logical order of sequence, not only in detail but also summarized by groups of associated items. Such an arrangement will make possible an intelligent interpretation of the results without retabulating the items

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and will exhibit them in a form easily comprehended. With this general idea in mind a schedule has been prepared which consists of five principal divisions, viz., "Receipts," "Disbursements," "Liabilities," "Exhibit of Previous Estimates of Unpaid Losses," and "Gain or Loss Exhibit." Within these divisions appear six groups of associated items in the following order: "Premiums," "Losses," "Service," "Taxes, Licenses and Fees," "Acquisition" and "Administration." These groups are intended to produce in the Gain or Loss Exhibit, in the form of ratios, such indications as are necessary for the purposes of those entrusted with the supervision of the business.

The intent of the Premium group is, of course, to obtain a record for purposes of comparison with the various expense groups.

The first group of expense items is Losses, which includes medical aid, and this group is by reason of its size the principal factor in the determination of premium rates. There are two principal reasons why this item requires separate treatment, one of which is that it is a fixed charge determined by law and the decisions of boards and cannot arbitrarily be reduced except at the expense of injured workmen. The other is that it is a particularly difficult item to place on a correct ultimate basis and requires careful individual treatment.

The Service group includes those expenditures which though not classed as losses are for the benefit of injured workmen and their employers and which for that reason should be sufficient for the purpose and must not be limited since to do so would be to defeat certain of the most important purposes of workmen's compensation legislation—the elimination of preventable industrial accidents and the rendering of claim service in connection with those which are unpreventable. The first two subdivisions cover the cost of accident prevention work and of making compensation payments and clearly constitute service items. The third item, which is relatively of much less importance, is payroll audit expense. It has been placed in this group in preference to others for the reason that it serves to protect honest and well-informed policyholders against understatement of payroll, intentional or otherwise, by their competitors. In the final analysis, this ultimately produces for the benefit of the first class of employers the lower average level of rates which experience must indicate when complete payroll reports are included.

The group Taxes, Licenses and Fees is self-explanatory and is maintained as a separate item because these also are charges over which the companies have no control and which they consequently cannot be required to limit.

The next two groups, which are Acquisition and Administration respectively, are provided for in that portion of the premium charge which is applicable to expenses which the companies and supervisory bodies should limit and are limiting to the utmost extent consistent with a proper handling of the business. As the agents act in an advisory capacity to policyholders respecting matters of law and insurance coverage, the payment to them must be sufficient to attract capable men to the service and no limitation can wisely be applied which will defeat that end. The Administration charge in the case of well-managed companies is a minor item as compared with most of the other group charges and, while it should be carefully limited to what is actually necessary, will not materially affect the premium charge. With this explanation of the reasons governing the makeup of the suggested schedule, copies of all five principal divisions are submitted as a prelude to further discussion.

RECEIPTS.

Premiums:

1. Written and renewed		$....	
2. Policies not taken		....	
3. Remainder		$....	
4. Returned on canceled policies		....	
5. Remainder		$....	
6. Additionals	$....		
7. Refunds	....		
8. Net increase or decrease		$....	
9. Total or remainder		$....	
10. Reinsurance		....	
11. Remainder		$....	
12. Dividends to policyholders, less assessments		....	
13. Net premiums			$....

DISBURSEMENTS.

Losses:

14. Death (Incl. funeral benefits $....)	$....
15. Permanent total	....
16. Dismemberment	....
17. Permanent partial	....
18. Temporary	....
19. Total	$....

20. Medical aid ....
21. Total .... $....
22. Cases dependent upon negligence, including medical aid.. ....
23. Total .... $....
24. Deduct reinsurance received ....
25. Net benefits, including medical, surgical & hospital items.... $....

Service:

26. Safety inspection and accident prevention, including $.... specific inspection fees paid to .... Inspection Rating Board .... $....
27. Investigation and adjustment of losses, including arbitration fees and legal and other expenses of hearings and court proceedings ....
28. Payroll audit ....
29. Total .... $....

Taxes, Licenses and Fees:

30. State tax on premiums @ ....¢ .... $....
31. All other items on business of this schedule ....
32. Total .... $....

Acquisition:

33. Commissions .... $....
34. All other* ....
35. Total .... $....

Administration:

36. Paid underwriting expense not listed above† .... $....
37. Total Disbursements .... $....

LIABILITIES.

Premiums Unearned:

38. Gross premiums upon all unexpired risks $....; unearned (pro rata) .... $....

Losses Outstanding, present values:‡

39. Death (Incl. funeral benefits $....) .... $....

* There should be included in this item such amounts of acquisition expense, other than commissions, as are subject to the 17½ per cent. limitation of acquisition expense. Salaries and expenses of managers and agents and a proper provision for rents and other overhead expenses chargeable to business of this schedule must be included. Has this been done? Answer ....

† There should be included in this item those amounts which are chargeable to the underwriting and administration of the business of this schedule. Has this been done? Answer ....

‡ There should be included in this item the present value of all future payments to be made on account of injuries sustained in connection with the business of this schedule, the amount for each injury to be estimated separately. Has this been done? Answer ....

40. Permanent total ....
41. Dismemberment ....
42. Permanent partial ....
43. Temporary ....
44. Total .... $....
45. Medical aid ....
46. Total .... $....
47. Cases dependent upon negligence, including medical aid.. ....
48. Total .... $....
49. Deduct reinsurance due ....
50. Net benefits, including medical, surgical & hospital items...... $....

Service Outstanding:

51. Safety inspection and accident prevention, including $.... specific inspection fees due .... Inspection Rating Board .... $....
52. Investigation and adjustment of losses, including arbitration fees and legal and other expenses of hearings and court proceedings ....
53. Payroll audit ....
54. Total .... $....

Taxes, Licenses and Fees Outstanding:

55. State tax on premiums at ....% .... $....
56. All other items on business of this statement ....
57. Total .... $....

Acquisition Outstanding:

58. Commissions .... $....
59. All other* (See * on p. 450).................................. ....
60. Total .... $....

Administration Outstanding:

61. Outstanding underwriting expenses not listed above† .... $....
62. Total Liabilities .... $....

EXHIBIT OF PREVIOUS ESTIMATES OF UNPAID LOSSES.

Total Compensation Losses Outstanding on Dec. 31 of Each of the Following Years as per Item 50, Each Year.		Actual Payments During Each of the Following Years on Accidents Which Occurred During the Periods Covered by the Original Outstandings.					Estimated Future Payments on Account of Said Losses on Dec. 31, 1916.	Revised Valuations, Col. (VI) Plus Col. (VII).	Ratio Col. (I) to Col. (VIII) Per Cent.
Year.	Amount.	1913.	1914.	1915.	1916.	Total.			
	(I).	(II).	(III).	(IV).	(V).	(VI).	(VII).	(VIII).	(IX).
1912	$	$	$	$	$	$	$	$	
1913		....							
1914		....	....						
1915		....	....	....					

GAIN OR LOSS EXHIBIT.

Receipts.

Premiums:

63. Net written (Item 13) .... $....
64. Add unearned (Item 38 of year previous) ....
65. Total .... $....
66. Deduct unearned (Item 38 of this schedule) ....
67. Earned premiums .... $....
68. Average of net written and earned premiums; one half the sum of Items 13 and 67 .... $....

Losses and Expenses Incurred.

Losses:

69. Net paid (Item 25) .... $....
70. Add outstanding (Item 50 of this schedule) ....
71. Total .... $....
72. Deduct outstanding (Item 50 of year previous)§ ....
73. Incurred losses .... $....
74. Incurred loss ratio (Item 73 divided by Item 67) ....%

Service:

75. Net paid safety inspection, etc. (Item 26) ....$....
76. Add outstanding (Item 51 of this schedule) ....
77. Total .... $....
78. Deduct outstanding (Item 51 of year previous) ....
79. Incurred safety inspection and accident prevention .... $....
80. Incurred inspection ratio (Item 79 divided by Item 13) ....%
81. Net paid investigation, etc. (Item 27) $....
82. Add outstanding (Item 52 of this schedule) ....
83. Total .... $....

§ If the revised valuation of the outstanding losses of the year immediately preceding, as indicated in Column VIII of the Exhibit of Previous Estimates of Unpaid Losses in this schedule, differs from the amount listed under item 50 of last year's schedule such revised valuation shall be here substituted for the earlier estimate. Has this been done? Answer ....

84. Deduct outstanding (Item 52 of year previous) ....
85. Incurred investigation and adjustment of losses, etc. .... $....
86. Incurred adjusting ratio (Item 85 divided by Item 67) ....%
87. Net paid payroll audit (Item 28)... $....
88. Add outstanding (Item 53 of this schedule) ....
89. Total .... $....
90. Deduct outstanding (Item 53 of year previous) ....
91. Incurred payroll audit .... $....
92. Incurred payroll audit ratio (Item 91 divided by Item 68) ....%
93. Total incurred service ratio (Sum of ratios under Items 80, 86 and 92) ....%

Taxes, Licenses and Fees:

94. Net paid taxes, etc. (Item 32) ..... $....
95. Add outstanding (Item 57 of this schedule) ....
96. Total .... $....
97. Deduct outstanding (Item 57 of year previous) ....
98. Incurred taxes, licenses and fees .... $....
99. Incurred taxes, etc. ratio (Item 98 divided by Item 13) ....%

Acquisition:

100. Net paid acquisition (Item 35) ..... $....
101. Add outstanding (Item 60 of this schedule) ....
102. Total .... $....
103. Deduct outstanding (Item 60 of year previous) ....
104. Incurred acquisition .... $....
105. Incurred acquisition ratio (Item 104 divided by Item 13) ....%

Administration:

106. Net paid administration (Item 36).. $....
107. Add outstanding (Item 61 of this schedule) ....
108. Total .... $....
109. Deduct outstanding (Item 61 of year previous) ....
110. Incurred administration .... $....
111. Incurred administration ratio (Item 110 divided by Item 68)......................... ....%

Summary:

112. Total incurred expense ratio (Sum of ratios under Items 93, 99, 105 and 111)	....%
113. Total incurred loss and expense ratio (Sum of Items 74 and 112)	....%
114. Ratio of underwriting profit or loss (difference between ratio in Item 113 and 100.0%)..........	....%
115. Estimated amount of underwriting profit or loss under earned premiums (Item 67 multiplied by ratio under Item 114)	$....

The first division of the proposed form is entitled "Receipts" and, like the annual statement, consists of a calendar year record of items of income, which, in an underwriting exhibit of this class, is composed entirely of premium amounts. The item, appearing on line 12 and entitled "Dividends to policyholders, less assessments," is inserted for the purpose of bringing the premiums of mutual companies to a net figure, in order to place loss and expense comparisons on a correct basis. As the premiums are reported on the issued basis, this dividend item should be the amount declared during the year, as otherwise the record might be confused in some instances by reason of the necessity of treating the unpaid portion of such an item under "Liabilities." There will be even greater need of such an item should mutual companies find it necessary during the next few years to increase their rates in order to make possible the payment of dividends to their policyholders. Any such increases above the levels established would otherwise result in erroneous comparisons. The arrangement of the premium items is such that there appears on line 5 an amount which may be compared with that under line 8 for the purpose of estimating the future net increase or decrease in premiums due to payroll audits or other causes. This is important by reason of the fact that Schedule "Z" which consists of audited business only cannot exhibit current loss ratios and consequently they must be checked up by reference to this schedule, which consists of more recent business, some of which has not yet expired and which can be placed on an estimated ultimate basis only after making a careful study of current and probable future developments. For internal purposes, the companies should go further than this and keep a record of additionals and refunds and also of notices of accidents, by years of issue and by state, as more accurate estimates can be made from such sources. It does not seem necessary to incorporate this feature in the schedule, however.

The "Disbursements" division is largely self-explanatory and consists of a calendar year record of cash expenditures as does the similar section of the annual statement.

Under the group entitled Losses the individual items have been subdivided in such form that if any compensation law is amended as to a particular benefit the value of the change can be most readily ascertained. The items have been so arranged that line 19 gives a total of what might be termed compensation payments to injured workmen and their dependants, as distinguished from medical aid, while lines 21, 23 and 25 also give totals which will frequently be desired in connection with comparative analyses.

Under the Service group the items appearing on lines 26, 27 and 28 should include here, as they do in the annual statement, a proper proportion of the overhead charges such as salaries, rents, postage, etc. The items composing the adjusting charge are outlined in detail in the footnote (d) appearing in connection with Schedule "P" in the annual statement. The following method of apportioning unallocated loss expense between lines of business is suggested for the reason that it has been found to produce amounts which fluctuate between the liability and compensation lines in accordance with the service rendered during a given period of time. Charge all unallocated legal claim expense to the liability business under which it is accrued. Apportion the balance of unallocated adjusting expense between the two lines by the use of the following amounts: compensation claim payments in toto; liability unlitigated claim payments in toto plus one fourth of the liability litigated claim payments. Safety inspection and payroll audit items should also include a proper provision for overhead expense. Unlike losses, the items in this group cannot always be directly allocated and, consequently, each company should report only that portion of those charges and the proportionate overhead applicable to compensation business of the state for which the report is being made up. This limitation as to state location of risk holds true as to all portions of the schedule.

The group headed Taxes, Licenses and Fees is also self-explanatory, including as it does only a proper portion of those charges which are specifically designated as such in the annual statement.

The Acquisition group consists principally of commissions, although in the case of companies operating under the branch office system of agency organization the commission charges do not cover certain overhead items and the latter correspondingly increase in importance. In the case of branch office companies considerable amounts of acquisition expense appear under general headings such as rents, etc., in the annual statement and as this is the opposite method of treatment from that accorded to Service items some apportionment is necessary. The amount of such expense should be determined by the reporting company and excluded from any amounts used as a basis for determining the administration charge. Unless this is done neither the acquisition nor the administration expenses of branch office companies will be obtained upon a basis properly comparable with those of general agency companies.

The Administration group should include all underwriting expenses for which specific provision has not been made heretofore. In the foregoing, underwriting expenses include only those having to do with the insurance end of the business, and exclude all investment items.

The division entitled "Liabilities" should include such portions of similar items appearing in the annual statement as are chargeable to the compensation business of the state under observation. In order to accomplish this, items 32, "Salaries, rents, expenses, bills, accounts, fees, etc., due or accrued," and 33, "Estimated amount hereafter payable for federal, state and other taxes based upon the business of the year of this statement," on page 5 of the annual statement should be subdivided more specifically and the items obtained apportioned or charged direct as the case may be to the business of this schedule. In explanation of the necessity for this action it may be stated that in the case of one company item 32 above mentioned is found to consist of inspection service 16 per cent., payroll audit 10 per cent., acquisition 60 per cent., administration 10 per cent., and items chargeable only to lines of business other than liability or compensation 4 per cent. As regards item 33 of the annual statement, no difficulty should be experienced in dividing it so as to show separately premium taxes and all others. With these requirements in mind we may proceed to discuss the specific groups within this division.

That group headed Premiums Unearned should of course be compiled for this subdivision of business by the use of the same methods applied in obtaining the total item which appears in the annual statement.

The next group, which covers Losses Outstanding, is subdivided in the same manner as the disbursement item. There is an added reason for doing so in the fact that loadings for underestimate can be more accurately estimated if this is done. This phase of the situation will be taken up in a later paragraph.

Under the Service Outstanding group the inspection and payroll audit items should each be proportionate parts of the amounts appearing therefor in item 32, page 5 of the annual statement. The Adjusting item should be a proportionate part of item 17, line 5 of the same statement. The best method of obtaining this item seems to be to multiply the amount of losses outstanding by the ratio of paid losses to paid adjusting and to then make a deduction for any preliminary work such as investigating which may have been completed prior to the time of statement.

The items appearing within the group Taxes, Licenses and Fees Outstanding should be obtained by taking proper proportions of the amounts constituting item 33, page 5 of the annual statement. Care should be taken, however, to see that the outstanding premium tax includes the total amount accrued and unpaid upon the basis of premiums written, including those which are not yet paid. Otherwise, an improper comparison will be made in the Gain or Loss Exhibit.

The Acquisition Outstanding group should include commissions upon all uncollected premiums at the rates stated in the policies. The balance of the acquisition cost outstanding should be a proper proportion of the amount which constitutes a part of item 32, page 5 of the annual statement.

The group styled Administration Outstanding should consist of a proper share of the total amount of administration included in item 32, page 5 of the annual statement.

The division headed "Exhibit of Previous Estimates of Unpaid Losses" is intended to serve as a reasonable check upon the accuracy of the estimates of previous years. The amounts entered in column (I) represent the loss reserves carried at the close of the years specified and these figures are compared with those appearing in column (VIII) which contains the total of subsequent payments under such accidents and the latest estimates of outstanding thereon. There should be included in columns (II) to (VIII) inclusive all amounts accruing under notices of accidents which happened prior to the dates of the original estimates whether or not they were included in the first instance. The ratio appearing in column (IX) indicates approximately whether or not subsequent experience proves the accuracy of original estimates. It is true that columns (I) and (VII) are present values and columns (II) to (VI) are actual payments, for which fact allowance should be made. Footnote § contemplates the use for the latest year shown of the item which appears in column (VIII) and, as only one year's actual payments are involved, there would seem to be no serious objection to its use as the situation produced is no different from that found elsewhere in the statement. In actual practice, an examination of this exhibit will for early years of compensation business indicate a considerable underestimate of outstanding losses and the necessity for a loading to cover that factor. If individual estimates are conscientiously made by claim adjusters such a condition will necessarily exist. This is due to the fact that at the time of estimate some accidents will not have been reported and others will not have developed to their full degree of seriousness. Such a loading of individual estimates can best be made by dividing the losses outstanding into items similar to those which appear in the proposed schedule under the group entitled "Losses," i. e., medical aid, temporary total, death, etc. Under these divisions groupings by years in which accidents occurred should then be made. When this has been done loadings can be applied to each group graded according to the age of the case and the character of the injuries. Careful observation of the results of the past few years of business and the relative amounts of later estimates as between items should enable one to produce results which will be reliable. The advantages of such a method as contrasted with a flat loading of the total losses outstanding is that it gives proportionate weight to each of several fundamental influences. For instance, it is obvious that more recent and, consequently, less fully developed cases will require heavier loadings than those of earlier origin and that the same relation will exist between the estimates of the cost of minor injuries, such as temporary total, and those for cases calling for the payment of more clearly defined benefits, such as accrue under the fatal and specific dismemberment provisions.

The "Gain or Loss Exhibit" division of the schedule is largely a recapitulation of preceding figures. It is by far the most important part of the schedule, exhibiting as it does final results in that form which most readily permits of comparisons—by means of ratios. The standard arrangement of items and groups of associated items as to order of sequence throughout the other divisions was intended to fit in with and to facilitate the compilation of this division in its most useful form. The value of the results is due to the fact that the ratio or ratios obtained in connection with each group of associated items result from comparisons with the particular premium groupings to which they are related. For instance, the incurred loss and adjusting ratios are obtained by comparison with the earned premiums. Inspection, tax and acquisition items are related to written premiums as they have been compiled upon a basis which renders them comparable with that item only. Payroll audit and administration expenses have been applied against the average of the written and earned premiums for the reason that in the event of a sudden change in volume of business such a basis is preferable to either a written or earned one. Another factor contributing to the value of the results is that the arrangement of the groups and the associated items therein is such that one may see at a glance upon a correct basis of comparison the ultimate loss, service, tax, acquisition and administration ratios and, in addition, the ratios of the three specific items constituting the service group. It also shows at a glance whether or not the 17½ per cent. acquisition or the total expense limitations have been exceeded. The total of the loss and expense ratios being given, the ratio of underwriting profit or loss is obvious. This ratio furnishes the means by which the estimated amount of underwriting profit or loss in connection with the premiums earned is determined. It does not seem advisable to attempt an adjustment providing for the effect of future additional or refund premiums in the schedule but the same might well be made a subject for special consideration.

As the value of the return is absolutely dependent upon its accuracy and any state record of an individual line of business involves the apportionment of many items of expense, it is of vital importance that the data called for shall be of such a nature and in such form as to assure its accurate compilation. The facts brought out in the foregoing forms all constitute essential information and consist of a careful selection and arrangement of what experience has shown can be obtained in reliable form from properly constituted accounting records. Further expense incident to the compilation of any additional data should be avoided so far as possible and no such data should be called for, unless it is demonstrated in advance that it can be compiled so as to give accurate and consequently valuable rather than misleading indications.

It is as a result of a full realization of the many practical difficulties with which we are met that the suggested forms have been submitted. It is hoped that a thorough discussion of the underlying principles of insurance accounting and practices which are involved will be productive of results beneficial to all those interested in the compilation or use of this important schedule.

Oral Discussion.

Mr. I. M. Rubinow: Mr. Goodwin's paper really discusses all the problems in cost accounting in the casualty business. There are a great many questions that may be raised in connection with the suggestions made. Some of them, I think, are questions of detail, as, for instance, apportioning the payroll.

I just want to raise one essential problem; that is, the purpose of this blank is to be a gain and loss exhibit. I take it, it is not for financial purposes, I mean for determining the solvency of the company, because that would have to include all lines of business in all states. For that purpose the financial statement itself is available. The purpose of this blank is to determine the financial results of casualty business in various localities along specific lines—some sort of a check on the general level of premiums.

The plan submitted is an improvement on Schedule W furnished in the past by Massachusetts, New York and Wisconsin, but, notwithstanding, it fails entirely in its purpose. To illustrate, let me give you the story of one of our schedules—I still say "our" Schedule W—of the Ocean Accident and Guarantee Corporation, with which I was connected. I sent in Schedule W of 1914 showing a loss ratio in Wisconsin of something like twenty-eight per cent., which I knew myself was incorrect, but which was the mathematical result of the figures stated accurately. Mr. Downey, then with the Wisconsin Industrial Commission, went up in the air, that we should rob the people of so much excess of premiums over losses as the schedule seemed to indicate. I pointed out to Mr. Downey that while the schedule answered his request it failed to show the true loss ratio—that in order to obtain the actual loss ratio it was necessary to combine Schedules W for 1913 and 1914; then you have a fairly accurate picture. The reason for our Schedule W in 1914 showing so low a loss ratio, and 1913 showing so large a loss ratio was two very disturbing factors. Those two sources of error were, first, the possibility of inaccurate estimates on losses, and second, the point Mr. Goodwin referred to and passed over, the question of additional payrolls. The supplementary statement in Schedule W demonstrates any possible error in the loss estimates. Of course, you may start with an error which will reduce your loss ratio for a year if you begin with underestimates. You begin with a case which looks like a serious case, and you make an estimate of five thousand dollars, on which the man refuses to die, and you find that your loss is small. There are other cases on which the total estimated loss is one thousand dollars. You close business in that state with a total loss of four thousand dollars, and you suppose you have made two thousand dollars on accidents in that state, which, of course, is an absurdity. You can adjust for that error, and you should, I think, carry over the corrections made in that supplementary statement into your account of what happened from year to year in the particular locality.

The second thing is your fluctuations in uncollected payroll premiums. To begin with, there is a serious difference between companies, some insisting on larger deposit premiums and some being satisfied with smaller deposits. If you will remember the footnote on page 2 of the financial statement giving the amount of premiums due for the past year, you will find that the total of that amount to the total premiums varies substantially. The Ocean had a very large amount as compared with other companies, because the system grew up of writing business on small deposit premiums. In 1914 we collected on that Schedule W in Wisconsin a very large amount of premiums that really were earned in 1913, because 1913 was a busy year. We were reasonably sure we were not going to collect in 1913 anything like the amount we had collected the year before. The sum total of it is that we showed an earned premium that was excessive, and a loss incurred which was too high. Of course, under those two conditions you have a loss ratio that is absolutely wrong. It is true that at the time you make out Schedule W you cannot tell what the schedule at the end of the year will be, but you can make corrections at the beginning of the year. When you make out Schedule W for 1915 you know how far your figures for 1914 were away from the truth, and you have to make a correction for that to begin with; and three or four months later you can make a substantial correction for Schedule W at the end of the year. If you make those corrections you might secure a true report of what has happened; and if you do not get a correct report, Schedule W is scientifically worthless.

In the Ocean I have tried to ascertain those quantities. It, of course, necessitates a certain amount of clerical labor, which is not prohibitive, as it probably kept one clerk busy for several months. When the payroll reports begin to come in, they may be divided into three classes, some coming in January, February and March; especially January and February are all earned the year before. You have a policy in March that had expired in December with a net aditional premium of a few hundred dollars on it—every cent was earned the year before, and to enter that in the year coming is an accounting error, and we are dealing with accounting problems.

There is the third group that has been entirely earned in the current year. That does not present any difficulty. The difficulty is on an additional premium on a policy which runs over from one year to another. If you wrote a policy from February to February at a hundred dollar deposit and collected another two hundred dollars, which is not at all uncommon, the difficulty is how much of that two hundred dollars was earned in the year you collected it, and how much the year before. I have assumed that the total premium of the risk was earned uniformly through the year, and I think that assumption, on the whole, will hold more or less, considering the policies that expired at all times during the year. I was able to prove that some sixty to seventy per cent. of all the additional premiums collected the first six months of the year were really premiums earned the year before, and unless you make those corrections, Schedule W is not scientifically correct.

MR. EDWARD S. GOODWIN: Dr. Rubinow's discussion convinces me that a more thorough explanation of the purposes of my paper is desirable.

One purpose was to originate a form of return carefully arranged and subdivided so that proper portions of the specific items composing the annual statement of any company could be transferred directly to it without any confusing or intermingling of unlike items. In other words, a systematic and orderly system of accounting was sought.

Another was to provide within the schedule, if practicable, and if not, by other means, for the proper treatment of items which at the time of the statement might not have developed to an ultimate basis.

The third was to set forth in the Gain and Loss Exhibit the necessary data in such order of sequence and so arranged by groups of associated items that when any information was desired, time would not have to be wasted in the making of more or less complicated recapitulations. Such an arrangement implies a treatment of the various items involved which will place them on a correct basis. For convenience, the results appear in the form of ratios.

Having in mind the limitations which arise from the necessity of setting forth a method to be applied without modification to the individual business of each of the several companies, the proposed schedule appears to be adapted to the purposes for which it was intended.

Dr. Rubinow states that the proposed blank is an improvement over previous forms but questions the reliability of the final results. He evidently refers to the fact that certain of the items composing the schedule have not and cannot have reached an ultimate stage of development at the time of statement and that consequently an unavoidable element of uncertainty exists. That this is to a limited extent true does not constitute a criticism of the proposed form so far as respects the arrangement thereof. Consequently, the following remarks are limited to the suggested treatment outlined in connection with undeveloped items.

It is to Schedule Z that we must look for correct ultimate loss ratios. Schedule W provides the record of expenses and in addition furnishes the first approximate indication of the loss ratio under current business. To that extent only can it be expected to supplement the more reliable loss data developed by the former return.

The record of losses outstanding under Schedule W must for some time to come result from individual estimates of the specific cases. We have used the method of loading outlined for two years with satisfactory results. It recognizes the principal determining factors, which are the age of the case and the character of the injuries. As a case develops more accurate estimates are possible and, in like manner, more reliable estimates can be made of specific benefit cases than of those not so rated. A careful examination of estimates will throw light upon their relation, as respects accuracy, to those of a previous period and the further recognition of the above factors will result in estimates sufficiently accurate for the determination of current loss ratios.

The effect of premium changes resulting from payroll audits has, in my estimation, been exaggerated. It is unfortunate that the schedule must be uniformly applied to all companies, as this prevents us from treating this item in the schedule. Unless a company follows the regrettable practice of habitually writing business for advance premiums less than those which should be obtained the effect of this factor will be limited to reasonable bounds, particularly if some estimate of the ultimate is furnished as a supplement to the regular schedule. Fortunately, the ratios representing the commission and tax portions of expenses are on an incurred basis and thus will follow the course of and will not be affected, as to their accuracy, by payroll audit returns. They constitute a considerable portion of the expense charge. The other expense items would be affected and it is for that reason that it is suggested that each company should be requested to submit some estimate of expected premium developments. If such a return indicated 5 per cent. greater ultimate premiums, the only change in the schedule required would be to divide the loss and expense ratios already obtained (except commissions and taxes) by 105 per cent.

From the foregoing it may be seen that the schedule in its final form is as complete as prevailing conditions will permit. The above remarks call for no change of procedure. They merely emphasize the importance of what was in the first instance deemed to be the best method of overcoming certain difficult and unavoidable features of the problem.

MR. CLAUDE E. SCATTERGOOD: I would like to ask Mr. Goodwin if he does not think that the plan outlined in my paper, entitled "Cost Accounting in Casualty Insurance" (*Proceedings,* Vol. II,

p. 253), would not give a more accurate apportionment of unallocated claim expense than the arrangement by apportionment as indicated in his paper? A great deal of claim expense in the liability business is incurred to avoid loss and therefore it would not be accompanied by a corresponding denominator. Also, should his statement, "Further expense incident to compilation should be avoided," be construed to mean that the expense of cost accounting should be avoided?

MR. EDWARD S. GOODWIN: Replying to the latter part of Mr. Scattergood's discussion first, it may be stated that the warning regarding additional expense was merely intended to call attention to the fact that it is economically unwise to call upon the companies to furnish exhaustive data unless the same is first carefully considered and found reasonably certain to produce results which would not be misleading but which on the contrary would be of sufficient value to warrant the necessary effort.

The method of apportioning unallocated claim expense outlined by Mr. Scattergood in his paper is an excellent one. That here outlined has been found to produce reliable results and has the additional advantage that very little work is involved in its application. The close uniformity of the results obtained in connection with a decreasing volume of liability and an increasing volume of compensation payments was not accidental. Compensation payments being made weekly the loss expense thereon follows the amount of total payments very closely. The cost of investigating and adjusting liability unlitigated cases which are settled rather promptly in like manner follows the total payments. It is true that the expense in connection with liability suits does not necessarily follow the settlements but the overlap will average up fairly well and in the final analysis this is a minor matter, these settlements being reduced to one fourth in size before being used for apportionment purposes. As a matter of fact, suits take only a moderate amount of adjusting expense as most of the work in connection therewith is done by attorneys and charged to legal claim expense.

This method of apportionment follows the claim payments, which in the final analysis determine adjusting costs. Giving due weight to each of the different classes of claims, it is particularly well adapted to conditions like those now existing when the proportionate volumes of the various classes of claims are rapidly shifting. No method of apportionment based on premiums only can accomplish this, particularly if the loss ratios and premium rates are also changing as is now the case. In other words, the method recognizes the fact that adjusting costs must inevitably follow the trend of claim payments.

MR. JOSEPH H. WOODWARD: I was very much interested in some of Dr. Rubinow's comments on Mr. Goodwin's paper, and it seems to me the discussion of the valuation of outstandings emphasizes the necessity for the adoption by all companies of some kind of a mechanical system for valuing outstanding losses as distinguished from individual estimates. I don't believe that individual estimates will ever give adequate reserves. They have been tried for a great many years in the liability business, in the surety business, and in other branches of casualty insurance, and the whole history of estimated losses has been a history of underestimates. Possibly one reason for this is that the claim adjusters have been called upon to furnish these estimates, and a claim adjuster will almost invariably underestimate a loss. He is compelled to psychologically protect himself by minimizing the loss. It seems to me that as the various state requirements become more numerous, and as the companies are called on to file statements in different states similar to the Massachusetts Schedule Z and the Wisconsin schedules, they will be compelled to resort to some sort of a mechanical method of valuation, and by that I mean some such method as that described in Mr. Fondiller's paper. The experience of the New York State Insurance Fund with that method has been on the whole very satisfactory.

One point that was made by Dr. Rubinow I am afraid I cannot agree with. I think it is his idea that in the returns in Schedule W it would be preferable to correct from year to year the outstandings as of the beginning of the year as of which the schedule was being compiled. Now I think that is a very dangerous proposition. Just as soon as you let a company start correcting its outstandings as reported at the end of the previous year, you immediately lose control over the actual progress of the accounts. If you compel the company to always start the beginning of the year with the estimates furnished at the end of the previous year, then underestimates are properly penalized and in the long run compensated for. Certainly, if any corrections are permitted in outstanding items brought over from the previous year, it seems to me they should be specified in great detail. The same problem presents itself in underwriting and gain and loss exhibits. If you let a company correct its outstandings in the gain and loss exhibit, you will never know whether the gain and loss exhibit is right or not. You have no measure of the accumulative error that may be introduced. If, on the other hand, you require the closing items of the previous year to be carried over dollar for dollar without any change, then it is clear that in the long run the aggregate figures must be correct.

The other difficulty mentioned, viz., the question of what to do with additional premiums, seems to me more troublesome. It is quite a problem to get into the accounts of a particular calendar period, receipts which it was not known were due the company until the succeeding calendar period. It seems to me that with a schedule devised for a particular purpose, like Schedule W, it might be wise to call for a footnote giving an estimate of these additional premiums in some such manner as Mr. Goodwin suggests, but I doubt the advisability of requiring them to be actually brought into the accounts showing profit and loss.