

A METHOD OF ASSEMBLING AND ANALYZING
THE DATA REPORTED UNDER THE UNIT
STATISTICAL PLAN

BY
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INTRODUCTION

The essential features of the New York Unit Statistical Plan, as well as the events leading to its adoption, have been stated comprehensively in Mr. Graham's paper* dealing with the method used by a carrier in the preparation of the data to be reported under the provisions of the Plan.

The Plan was designed with the following objects in view: (a) to determine to what extent the manual rules are observed and thus to correct improper underwriting practices, (b) to use the same experience in the merit rating of risks and in the determination of classification pure premiums and (c) to ascertain the degree of difference between small and large risks.

In this paper an attempt is made to describe the methods of assembling, analyzing and tabulating individual risk experience by a central organization in its efforts to fulfill the aims of the Unit Statistical Plan.

In order to permit a clear understanding of the office routine and the manner in which the individual risk experience enters into both the statistical and rating procedure, we shall give a brief outline of the internal organization of the Compensation Insurance Rating Board.

The Recording Division or Index

The Statistical Plan provides that a copy of every policy declaration, cancelation or endorsement be submitted to the Board for approval. The number of employers purchasing compensation insurance in the State of New York may be roughly estimated at 250,000. The number of policy declarations, cancelations and endorsements received by the Board annually is more than twice that amount. To classify and file this vast material, the Board has adopted a numerical file system whereby to every employer there is assigned a Board file number. To

* "The New York Unit Statistical Plan; A Method of Preparing and Reporting Data and Analyzing the Carrier's Business," by Charles M. Graham, *Proceedings*, Vol. XVII, page 190.

this end, cardboard cards 3" x 5" have been prepared which show the name of the employer, the location, business address, hazard coverage and Board file number (Exhibit I-A). These cards are filed alphabetically. Whenever there are two or more names specified for a given risk, cross-index cards are prepared (Exhibit I-B) as it is very likely that some material may show the names in different order or else it may fail to show the complete name. This arrangement permits the Recording Division to assign Board file numbers to all material received.

Due to numerous errors of various nature on the part of the carriers as well as to the similarity of many names, the task of assigning Board file numbers is not an easy one and often a very slight variation in the name, address or other item of information will cause no end of confusion.

The Expiration Record

In order to assure the completeness of the submittals of experience by the carriers as well as the completeness of submittals of policy declarations, an Expiration Record has been established. Cardboard cards 3" x 5" showing the name of the assured, the effective date of the policy and the file number are prepared for every risk (Exhibit II). When a policy declaration is received, an entry is made to show the policy year, the carrier code and the policy number. The cards for risks effective in any given month are filed in numerical order and by effective date within each month.

When a cancellation is received, the card is marked to indicate the effective date of the cancellation in order to distinguish between flat and short term cancellations. If the policy is reinstated, the date of reinstatement is also entered in a space provided for that purpose.

At the time the experience report reaches the Board, the date of its entry is shown in the proper space on the card. The expiration record clerk also reviews the losses on the experience card to note whether there are any open cases and if all cases are closed, a check mark is inserted in the appropriate column which will indicate that no second, third or fourth reports will be required. When the experience for a certain month has become overdue, the cards for that month are reviewed and any one which is not marked to show the receipt of experience and where

the policy has not been canceled flat, serves as a basis for a follow-up letter to the carrier.*

The Statistical Division

After all the experience cards are recorded by the Expiration Division they are turned over to the Statistical Department where they are coded, audited, punched, verified and check-tabulated, all of which processes will be described in detail in another part of this paper. They are then turned over to the Filing Division.

The Filing Division

For every Board file number there is a so-called "statistical" file folder. This folder contains all the experience cards for a given risk as well as all the correspondence in connection therewith and in case of risks not subject to rating, all other material like policy declarations, etc. At the present time a separation is maintained as between risks subject and not subject to rating, each group being filed in numerical order. For risks subject to schedule and/or experience rating there are usually two additional "rating" files, each for a separate policy year which contain all policies, inspection reports and other material relative to the rating of the risk.

The Rating Division

From the above it becomes apparent that when the time arrives for the rating of the risk all experience relative to the given risk will be found in the statistical file, provided that such experience has been submitted by the carrier in accordance with the provisions of the Statistical Plan. The office routine described above requires at the present time from three to four weeks and it is, therefore, evident that a delay on the part of the carrier in submitting experience results in a corresponding delay in the rating of the risk.

STATISTICAL ROUTINE

We shall now give a detailed description of the various steps of office routine in connection with the experience data sub-

* The author has recently evolved a new plan for recording of policy declarations, cancellations, etc., which will eliminate all of the shortcomings of the present expiration record and permit an automatic follow-up. This plan is described in detail in the latter portion of this paper.

mitted to the Board. Inasmuch as frequent references will be made to experience cards, the exposure and the loss sides of the card have been reproduced in Exhibits III-A and III-B, respectively.

Receipt of Experience—Controls

Upon receipt, each experience card is checked to determine whether the total risk payrolls, premiums and losses found in the lower right-hand corner of the card agree with the totals of the individual items reported. This is done in order to eliminate all clerical and typographical errors. When these totals are found correct, the shipment is summarized and the grand total compared with the letter of transmittal. The shipment is then acknowledged and the carrier advised of discrepancies whenever such are found to exist. The correct totals are entered on the control card (Exhibit IV-A).

Assignment of File Numbers and Recording of Expirations

The cards are then stamped by means of a multigraph machine in the lower left corner to indicate the date of receipt and the date of acknowledgment of the shipment. The next step is the assignment of Board file numbers by the Index Division. The file numbers are shown in pencil in the upper right corner of the card and are followed by the Symbol S, X or SX whenever the risk is subject to schedule, experience or both schedule and experience rating. At this stage there begin serious difficulties. It happens very often that the name shown on the experience card does not agree with that shown on the original declaration by reason of clerical mistakes, like spelling, transposition of letters or else because of a change of interest of which change the Board has not been advised. The number of such cases runs into the thousands. In order not to delay the statistical procedure, such cards are marked with the symbol "X" in red and delivered to the Statistical Division for coding, auditing, punching and verifying. A tabulated record is prepared for these "special" cards separately for each shipment and the punch cards are filed in special cabinets. Correspondence is immediately commenced with the carrier to determine the correct name and address of the assured. When the Board file number is ultimately assigned to these cards, the corresponding punch cards are pulled, the file

numbers inserted and the cards combined with the remainder of the shipment. Those cards to which Board file numbers have been assigned are forwarded to the Expiration Record where the experience is recorded and the date of such record is shown on the experience card in the space captioned "Listed." When this process is completed the cards for each shipment are assembled, put in serial number order and delivered to the Statistical Division.

Coding

The following information is then coded:

1. Carrier code number is inserted opposite the carrier's name.
2. Term. Full term policies are designated by putting a horizontal line in the space to the right of the legend "Classification Wording" and short term policies are designated by the letter "S" in the same space.
3. Type of Coverage. Full coverage is designated by digit "0" and ex-medical coverage by digit "1" in the space to the left of the legend "Classification Wording."
4. The Industry Schedule is assigned on the basis of the governing classification and a circle is drawn around the governing classification.
5. Premium Size Codes are inserted in the space provided on the experience card in accordance with the table of premium size groups shown below:

Code (Minimum Premium Risks)	Premium	Code (Non-Minimum Premium Risks)	Premium
00	under \$ 25	40	\$ 300- 399
01	25- 49	50	400- 499
02	50- 99	60	500- 749
03	100-199	61	750- 999
04	200-399	70	1,000- 1,499
05	400 and over	71	1,500- 2,499
		72	2,500- 4,999
		80	5,000- 7,499
		81	7,500- 9,999
10	under \$ 25	90	10,000-14,999
11	25- 49	91	15,000-24,999
12	50- 74	92	25,000-49,999
13	75- 99	93	50,000-74,999
20	100-149	94	75,000-99,999
21	150-199	95	100,000 and over
30	200-299		

The above table gives an insight into the various possibilities of the sub-division of experience according to size of risk.

Preliminary Audit of Experience

The so-called auditors check the coding in the first place. The type of rating code is assigned by them in accordance with the symbol shown by the Index Division after the Board file number. Digit "0" is inserted in the space labeled "Type of Rating" in case of risks not subject to rating. Digits "1", "2" and "3" are used for risks subject to schedule, schedule and experience, and experience rating, respectively. A rough calculation is made to verify the extension of the payrolls by the rates and in the case of small risks, the correctness of the Loss and Expense Constant or the Minimum Premium is verified. Classifications assigned to losses are compared with the classifications shown on the exposure side of the card. In case of death, permanent total and open claims, the individual reports are examined and reserves checked in accordance with the tables. Upon completion of this procedure, the auditor inserts his or her initials in the space labeled "Audit." If errors of minor nature are disclosed, a list of all errors for a given shipment is prepared and sent to the carrier, together with a form letter requesting the necessary corrections (Exhibit V).

Questionable items or errors of more serious nature like the reporting of classifications, the use of which is subject to authorization by the Board, the use of discontinued classifications or classifications not available in New York, the reporting of large payrolls on an estimated basis, incorrect valuation or classification of losses, etc., are marked for a "final" audit. Experience cards which are correct in every respect but which by reason of premium volume or classification seem to indicate that they may qualify for either experience or schedule rating are also marked for final audit. This is accomplished by leaving the space labeled "Audit" blank and by specifying in the lower left corner of the card the reason for the necessity of a final audit. The blank "Audit" space constitutes a signal to the filing clerks that when the card reaches the Filing Division it is to be delivered together with the file to a specially designated auditor for final audit.

Punching and Verifying

Upon the completion of the preliminary audit, the shipment of experience cards is ready to be transferred to the Hollerith

card records. Exhibit VI shows a reproduction of the punch card used by the Board. The following information is punched:

- (1) Policy Number.
- (2) Board File Number. The insertion of this item permits a reference to the file in the case a question should arise in connection with a given punch card.
- (3) Month and Year of Issue.
- (4) Carrier's Code Number.
- (5) Serial Number. This information is inserted primarily as an aid in the checking of the shipment and also for the purpose of filing the punch cards prior to the final tabulation of the experience. Furthermore, complete lists of all risk cards are prepared which are very convenient in connection with the handling of revisions.
- (6) Industry Schedule.
- (7) Type of Rating Code.
- (8) Premium Size Group Code.
- (9) Coverage Code.

The above items are punched directly from the information shown on the card by the carrier and supplemented by the Index Division, the coders and the auditors.

- (10) Transaction. The punch clerks are instructed to prepare a separate card for each classification showing exposure and premium, such cards being designated as "premium" cards. A separate card is punched for each indemnity and each medical amount on compensable claims as well as separate cards for total non-compensable or contract medical amounts for each classification,* these cards being known as "loss" cards. Finally, a summary card is punched showing total payrolls, premiums earned and losses incurred, as well as the amounts of the Loss and Expense Constants, this card being designated as a "risk" card. Thus, the transaction column is punched as follows:

* Beginning with policy year 1929, any non-compensable or contract medical claim in excess of \$100 is punched as a separate item in order to permit an analysis of experience to determine the excess factor for medical losses in the rating plan.

- Digit "1" (P) to designate the "Premium" cards.
- Digit "2" (L) to designate the "Loss" cards.
- Digit "3" (R) to designate the "Risk" cards for full term policies.
- Digit "4" (S) to designate the "Risk" cards for short term policies.

- (11) Classification. The premium and loss cards show the classification code to which they are assigned; the risk card shows the code of the governing classification.
- (12) Kind of Injury. This column is punched as follows:
 - Digit "0" in the case of "Premium" or "Risk" cards.
 - Digit "1" for a Death case.
 - Digit "2" for a Permanent Total injury.
 - Digit "3" for a Major Permanent injury.
 - Digit "4" for a Minor Permanent injury.
 - Digit "5" for a Temporary Total injury.
 - Digit "6" for a Compensable Medical claim.
 - Digit "7" for a Non-Compensable Medical amount.
 - Digit "8" for a Contract Medical amount.

The key-punch operators are familiar with these codes and punch them directly from the symbol appearing opposite the amount on the experience report (Exhibit III-B).

- (13) Payroll or Number of Compensable Claims. On premium and risk cards this field is used for the insertion of payrolls. In the case of per capita classifications, 1,000 represents each unit of exposure. On loss cards, digit "1" is punched in the forty-third column for each compensable claim and the field is entirely omitted in the case of medical amounts.
- (14) Premium or Incurred Cost. The premium card shows the audited premium for a given classification and the risk card shows the total policy premium inclusive of the amount of the Loss and Expense Constants, if any. The loss card shows the amount of loss.
- (15) Constant. This field is punched in the case of risk cards only and provides for a separation of the Loss and Expense Constants.

- (16) Total Risk Losses. Risk cards only show this information.
- (17) Number of Risks. Each risk card is punched digit "1" in this column, otherwise digit "0" is shown.
- (18) Open or Closed. Used in connection with compensable claims only, digit "1" being punched for an open claim and digit "2" for a closed claim.
- (19) Claim Number. To identify any particular claim if a reference to the original report becomes necessary.
- (20) The Month and Year of Accident. Used in connection with loss cards only.

In addition to the above, columns 75 to 80 of the punch cards, which have no headings whatever, are used as follows:

- (21) Column 75 is punched digit "1" on loss cards representing amounts paid under the U. S. Longshoremen's and Harborworkers' Act.
- (22) Column 76 is punched digit "1" in the case of "complement" risk cards where a deduction of a risk is contemplated.
- (23) Columns 77 and 78 are reserved for some future use.
- (24) Column 79 is used in connection with revisions, digit "1" being punched to indicate corrections, digits "2", "3" and "4" to indicate "second", "third" and "fourth" reports respectively.
- (25) Column 80 is punched digit "X" to indicate "Per Capita" classifications.

After the cards are punched they are verified. The operator then stamps each experience card in the space labeled "E. P." and "L. P." to show her symbol and the date on which the verification was completed.

Check Tabulation

The punch cards for a given shipment are sorted by transaction to separate premium, loss and risk cards. Each type of card is then run through a printer-tabulator and the totals shown in the following manner:

Carrier: The X. Y. Casualty Co. Code No.: 39
 Serial Numbers: 179 to 254

Received: (Second date stamped in lower left corner)

1. Premium Cards	Payrolls	Premiums			
2. Loss Cards	No. of Claims	Losses Incurred			
3. Risk Cards	Payrolls	Premiums	Losses Incurred	Loss	Constants Expense

If the above tabulation shows discrepancies between the premium and risk cards and/or the loss and risk cards, the cards are tabulated again to show the above information for each serial number in order to trace the discrepancy to one or to several experience cards. As soon as the check-tabulation is balanced, it is forwarded to the control clerks and the punch cards are filed in cabinets by carrier and by transaction. The cards of each carrier are kept in serial number order.

Controls

The results of the check-tabulation are compared with the totals on the control card and when correct they are entered on the reverse side of the control card (Exhibit IV-B). The experience cards are then forwarded to the Filing Division where they are attached to the respective files, except that the cards marked for "final" audit are brought together with the file to the auditors.

Final Audit

The auditor reviews the questionable item as well as any other pertinent information in the file and then corresponds with the carrier in order to clarify the situation (Exhibit VII). Whenever the card, together with other information in the file, indicates that the risk qualifies for schedule or experience rating and is not currently rated, the auditor attaches a memorandum to this effect and transfers the file to the proper section of the Rating Division. If the file indicates the use of improper classifications, the auditor transfers the file to the Engineering Division for review and classification.

Revisions

In accordance with the provisions of the Statistical Plan, the carriers are required to submit a revalued report of all death, permanent total and all open cases twelve, twenty-four and thirty-six months after the original submission of the experience.

In addition to these "second", "third" and "fourth" reports, there are numerous occasions where a correction is necessary either by reason of an error in the original report or else the lack of complete information at the time of the preparation of the original report, e. g., final audit of payrolls. The office procedure in connection with revisions is quite analogous to that in connection with the original reports as described above, except that the audit of revisions is considerably more laborious. This is due to the fact that in practically every instance it is necessary to refer to the original report which in turn means the handling of many files. If one bears in mind the difficulties encountered in the assembling of a large quantity of files (like the possibility of files being in circulation, files where the original report is missing either due to misfiling or the incorrect assignment of file numbers) one realizes the tremendous task necessitated by revisions received by the Board to the extent of approximately 25,000 annually. This situation is still more aggravated by the fact that the reporting of revisions seems to present difficulties to the carriers themselves, who either overlook one or another provision of the Plan and sometimes disregard the Plan entirely or submit another "original" report showing revised figures but assigned to a different serial number. Only due to the fact that the receipt of the experience is checked against the record of the policy declaration in the Expiration Division, such "duplicate revised" reports are discovered. As time goes on the provisions of the Statistical Plan will be clearly understood by all carriers and the Board's *modus operandi* will be perfected so that the above-mentioned difficulties will be considerably reduced. The revisions necessitate the punching of two sets of cards, one set to effect a deduction of previously reported items (such amounts being punched as complements to 100,000,000) and the other set is intended to re-establish the revised amounts.

New Expiration Record—An Improvement in Office Routine

The Expiration Record was designed in order to permit the Board in general and the Rating Division in particular, to ascertain at any time whether or not a particular experience report had been filed. It also serves as a check on the completeness of the reports of the carriers, inasmuch as the policy declarations, cancelations, etc., are submitted usually by the underwriting de-

partments and the experience cards by the statistical departments of the carriers. For every policy declaration which was not canceled flat the Board expects to receive an experience card or, vice versa, for every experience card the Board should have a policy declaration on record.

While, in theory, the present Expiration Record arrangement appears to be satisfactory, the practical results have demonstrated that it does not fulfill its purpose to the extent desired and that it could not be improved without a substantial increase in personnel. The situation may be best illustrated if one considers a case where the experience card is assigned an incorrect file number by the Index Division. The expiration clerk, being unable to find a record of such policy declaration on the expiration card bearing this file number, assumes that the policy declaration was not received and records the receipt of the experience card against the incorrect Board file number, or else prepares a new card copying the policy number and the file number from the experience card. As a result, the receipt of the experience card is not marked against the proper file number so that neither the Rating Division nor the follow-up clerks are in a position to determine whether or not the experience has been received. Other disadvantages of the present Expiration Record are the necessity of sorting all material to be recorded in file number order as well as the cumbersome handling of a large number of cards in order to make a single entry.

The following plan has been adopted by the Board to eliminate all the shortcomings of the present Expiration Record and to permit an automatic follow-up. In essence, this plan provides that a punch card be prepared for each policy declaration, cancellation or reinstatement. Such punch card would show the following information: (a) policy number, (b) Board file number, (c) carrier's code number, (d) effective date, month, day and year, and (e) transaction code (to differentiate between declarations, cancellations or reinstatements). The punch cards obtained in this manner would serve to prepare for each month of issue two sets of lists, one by policy numbers for each carrier, the other by Board file numbers to include the policies of all carriers. When the experience cards for a given month are received, they will be checked against the monthly lists of policies

for the reporting carrier. If all cases on the experience card are closed, the list will be marked to indicate that no second reports are necessary. The second, third and fourth reports would find their way into this record in a similar manner.

The simplicity and advantages of the above method will become apparent if we consider that the sorting of policy declarations, cancelations, etc., as well as the sorting of experience cards will be entirely superfluous, as the punching of the cards and the checking against the list may be done in any order whatever. Furthermore, the period required for the punching of declarations and the recording of experience cards will be considerably reduced. Any errors made by the Index Division in the assignment of file numbers to experience cards will be eliminated, inasmuch as the file numbers will be assigned directly from the list of policies, thus placing the experience card in the same file to which the policy has been attached. If, for some reason or other, the policy declaration has been assigned an incorrect number, it will be always possible to trace the file number to which it has been assigned from the monthly lists of policy declarations. All policies for which no experience cards are received and which are not canceled flat, would be immediately noticeable after the shipment of cards for the given month has been completely recorded so that a form letter could be sent to the carrier with a list of the policies for which no report has been received.

The above plan will go into effect beginning with policy year 1932. It will be necessary for a period of twenty months to have both the old and the new Expiration Record for the reason that all experience relative to policies issued prior to 1932 will not reach the Board until August, 1933. The new Expiration Record, however, will not require any additional help, inasmuch as the amount of work of the old Expiration Record will gradually decrease. As a matter of fact, as soon as the present Expiration Record ceases to exist, the number of employees of the new unit will be about one-half of the number needed at the present time.

It may be well also to point out that the creation of the new unit will permit the experience cards to remain in the Statistical Division from the time of receipt up to the time when the punch cards have been completely balanced and filed. Such an arrange-

ment is extremely desirable as it eliminates the special handling of the cards where the name is incorrectly reported and cards which are misplaced or mislaid by other divisions.

TABULATION OF EXPERIENCE

The first year reported under the Unit Statistical Plan was policy year 1928. We shall give a brief description of the manner in which the Board has tabulated this experience. Consideration has been given to the method of obtaining first, the classification experience comparable to that under the old Schedule "Z" and second, various analyses of the risk experience for the purpose of study and investigation of such features of the compensation business, of which study was impossible or impracticable heretofore.

The premium, loss, and risk cards have been tabulated separately in the order stated and as each tabulation presents different features and serves different purposes, we shall take them up individually.

Tabulation of Premium Cards

The premium cards were principally designed to permit the tabulation of classification experience for rate making purposes. At the time, however, when the Conference Committee had under consideration the problem of a loss cost differential between small and large risks, it was pointed out that the comparison of experience on the collected premium basis does not accurately reflect the actual conditions.* It would be, therefore, of advantage to present the experience by size of risk both on the collected and the manual level of rates. Inasmuch as the tabulation by size of risk would have to be presented separately for each of the three broad industry groups and the Board having decided to subdivide the experience by month of issue, it became apparent that the use of all the premium size groups as shown on page 103 would be impracticable, as it would produce a too fine subdivision of the experience and the number of master cards to be punched would assume prohibitive pro-

* See paper entitled "Recent Developments with Respect to Distribution of Workmen's Compensation Insurance Costs," by Charles J. Haugh, Jr., *Proceedings*, Vol. XIV, page 262. This particular item is discussed on page 268.

portions. It has been decided, therefore, to subdivide the premium cards into the following premium size groups:

Premium Size Group 1— Minimum Premium Risks		Codes 00 to 05 inclusive
Premium Size Group 2— Risks with premiums up to	\$ 99	Codes 10 to 13 inclusive
Premium Size Group 3— Risks with premiums from	\$ 100- 399	Codes 20, 21, 30 and 40
Premium Size Group 4— Risks with premiums from	400- 999	Codes 50, 60 and 61
Premium Size Group 5— Risks with premiums from	1,000-4,999	Codes 70, 71 and 72
Premium Size Group 6— Risks with premiums of	5,000 and over	Codes 80, 81 and 90 to 95 inclusive

The premium cards had to be furthermore subdivided as to those for full medical and those for ex-medical coverage. The manner in which the actual tabulation was conducted is illustrated in Exhibit VIII. As soon as a sheet had been tabulated it was subjected to an audit which consisted in calculating the average collected rates and comparing them with the manual rates effective at that time. In this manner all errors in punching of payrolls or classification codes have been discovered and corrected.

From the tabulation thus obtained master cards were cut. A facsimile of the master-card used by the Board is shown in Exhibit IX. It will be readily seen that both the forms of blanks used for the tabulation, as well as the master cards, have been designed in such a way as to make the punching simple and efficient. Exhibit VIII also discloses the fact that in addition to the monthly cards, total cards have been prepared for each classification, thus obviating the necessity of adding the sheets and permitting a direct check of both sets of master cards against each other. The verification was, therefore, limited to the coding portion of the card only.

Tabulation of Loss Cards

In connection with loss cards, the subdivision by industry groups and by premium size groups was deemed unnecessary for the reason that the losses on the risk cards would supply such information directly. The loss cards have been, therefore, subdivided, first, by kind of injury and second, by month of issue within each classification. The loss card tabulation is illustrated in Exhibit X. This tabulation was also audited in order to discover any errors in code numbers and to determine the proper

classification of claims as regards the kind of injury. To this end, the average claim cost was calculated and whenever it was not found reasonable for the given kind of injury, the punch cards and the files were investigated to determine whether or not the questionable item had been punched correctly.

Tabulation of Classification Experience

As soon as the master cards obtained from the premium and loss card tabulations have been balanced and compared with the controls, classification total cards were removed and the classification experience tabulated.

It may be well to remark at this point that while the total number of master cards was less than 10 per cent. of all the original punch cards, the number of classification total cards used in the tabulation of classification experience was only about 12,000.

Tabulation of Risk Cards

The risk cards were designed to permit an analysis of the experience in every conceivable way. In view of the fact that the number of risk cards is approximately 250,000, the tabulation of these cards for any particular item of information would involve a considerable amount of time both for sorting and for tabulating. The Board has, therefore, endeavored to prepare one set of master cards which would yield practically all of the information that might be desired. To this end, the risk cards were tabulated separately for full term and short term policies. Each of these groups was subdivided into non-rated, schedule rated, schedule and experience rated, and experience rated risks. The cards for each type of rating were then sorted by industry schedule, each industry schedule subdivided by premium size groups (using all possible premium size codes) and finally, each size group was subdivided by month of issue. The only item of information not used was the governing classification, as the use of this item would result in a very fine subdivision of experience and it was felt that if an analysis of any special classification should appear desirable, such an analysis could be readily prepared from the original punch cards. The experience

of the State Fund was tabulated separately in order to make an adjustment in the collected premiums to bring them to the level of manual rates. The manner of the tabulation of risk cards is illustrated in Exhibit XI.

The tabulation of the premium cards as described above makes it possible to calculate premiums at manual rates separately for each of the three broad industry groups, with the further subdivision into six premium size groups. The fact that the payrolls for each classification are available by month of issue, will make it possible to present a comparison of loss ratios both on the collected and the manual basis prior to and after the introduction of the loss and expense constants. It will be also possible as time goes on to change the basis of the classification relatively from five policy years to sixty calendar months, thus permitting rate revisions at any time during the year.

The master cards obtained from the risk card tabulation will permit a presentation of size of risk experience by industry schedules, by type of rating, by term, by coverage or any desired combination of these items. Inasmuch as the monthly figures are available, the Board will be in a position to make comparisons between the ratios of losses paid to premiums written as reported in the quarterly loss ratio data and the ratios of losses incurred to earned premiums for the corresponding periods.

The foregoing outline of methods used in tabulating the unit reports does not claim to exhaust all of the possibilities of the Plan. Further refinements as, for example, the punching of the actual merit modifications for each risk and thus the possibility of obtaining the actual analysis of rating results might appear desirable. It is hoped that in time both the Board and the carriers will perfect their technique of handling the unit reports and thus contribute toward a more scientific rate making for workmen's compensation insurance.

The results of the above tabulations are not yet available in their final shape and therefore it is too early to draw any conclusions. But it is reasonable to assume that the various analyses prepared from such tabulations for one or more policy years will shed new light on the various problems of workmen's compensation insurance of sufficient interest to serve as material for another contribution to these *Proceedings*.

EXHIBIT I-A

Board File #555,555	
JOHN DOE & RICHARD ROE	
LOCATION	New York City
BUSINESS ADDRESS	150 West 139th Street
COVERAGE	5403 - Carpentry
<small>Form 93-50M-3-31-31</small>	

EXHIBIT I-B

Board File #555,555	
RICHARD ROE	
LOCATION	New York City
BUSINESS ADDRESS	150 W. 139th St.
COVERAGE	5403 - Carpentry
<small>Form 93A-25M-9-11-31</small>	
John Doe & Richard Roe	

EXHIBIT II

EFFECTIVE		FILE NUMBER								
MO.	DAY									
3	21	555,555								
NAME OF ASSURED			JOHN DOE & RICHARD ROE							
Policy Year	Carrier	Policy Number	Cancellation		Experience Report		All Cases Closed	Revalued Reports		
			Eff. Date	Reinst.	Requested	Received		2nd	3rd	4th
28	OA	245,678				11-7-29		1-330		
29	OA	390,231				11-1-30	✓			
30	OA	475,383	3-2			-				
30	LI	5,675,929				10-20-31	✓			
31	LI	5,842,711								

Form 202-50M-9-2-31

EXHIBIT III-A

Policy No. _____ Assured _____ Address _____ Period: From _____ to _____ Location _____			Board File No. _____ COMPENSATION INSURANCE RATING BOARD New York Experience-Exposure				
			Carrier _____		Serial Card No. _____		
FOR BOARD USE ONLY							
Location	Ind. Sch.	Type Rtg.	Pr. Size	Listed	Audit	E. Punch	L. Punch
Special Conditions Affecting Coverage:							
Class Code	Classification Wording	Estimated			Audited		
		Payroll	Rate	Premium	Payroll	Rate	Premium
Total - All Classes			X X			X X	
		Loss & Expense Constant			X X X X	X X	
		Total Policy Premium			X X X X	X X	
		Total Losses Incurred (Including both Compensation & Medical)					
EXPERIENCE							

EXHIBIT IV-A

COMPENSATION INSURANCE RATING BOARD—MONTHLY CONTROL CARD

CARRIER _____ MONTH _____ POL. YEAR 193 _____

TOTALS SHOWN IN THE LETTERS OF TRANSMITTAL

Date Received	Date to Index	Serial Numbers		Payrolls	Premiums	Losses	Remarks
		From	To				
Total							
Total of Punch Cards							

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EXHIBIT IV-B

COMPENSATION INSURANCE RATING BOARD—MONTHLY CONTROL CARD

CARRIER _____ MONTH _____ POL. YEAR 193 _____

PUNCH CARD TOTALS

Date Posted	Serial Numbers		Payrolls	Premiums	Losses	No. of Risks	No. of Claims	Loss & Ex. Constant	Remarks
	From	To							
Total									

EXHIBIT V

COMPENSATION INSURANCE RATING BOARD

370 SEVENTH AVENUE
NEW YORK

POLICY YEAR

IMPORTANT - Please direct your reply to the undersigned and mention the above date and symbol.

Dear Sir :

Attached is a list of a number of your experience reports for policy year 192 , which do not appear to be correct. The nature of errors is explained in the appropriate column.

May we request you to review these items and let us have the necessary corrections at the earliest possible date?

We shall appreciate it very much if you would be kind enough to look into the causes for these errors and to eliminate them from your future reports.

Very truly yours,

ASSISTANT ACTUARY

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LIST OF ERRORS ATTACHED TO LETTER OF.....
SENT TO THE.....COMPANY

<u>Board</u>	<u>Serial</u>	<u>Policy</u>	<u>Nature of</u>
<u>File No.</u>	<u>Card No.</u>	<u>Number</u>	<u>Errors</u>

EXHIBIT VI

Classification and Risk Experience Card

POLICY NO.	FILE NO.	ISSUE NO.	CARRIER YR.	SERIAL NO.	IND. SCR.	TRANSACT. COV.	PREM. SIZE RATINGS	CLASS	KIND OF INJURY X	PAYROLL OR NO. OF COMP. CLAIMS X	PREMIUM OR INCURRED COST X	CONSTANT LOSS X	EXP.	TOTAL RISK LOSSES X	NO. OF RISKS OPEN OR CLOSED	CLAIM NUMBER	DATE OF ACC. MO.	YR.
00000000	00000000	00	00	00000000	00	00	00	000000	0	00000000	00000000	0000	00	00000000	0	00000000	00	000000

EXHIBIT IX

Master Card

MASTER CARD	SHEET NO.	TRANSACT. COVERAGE TERM	IND. SCR.	PREM. SIZE RATINGS	CLASS	KIND OF INJURY X	ISSUE NO.	YR.	PAYROLLS X	PREMIUMS X	INCURRED COST X	NUMBER OF CLAIMS OR RISKS X	LOSS CONSTANTS X	EXPENSE CONSTANTS X
X	X	00	00	00	00	00	00	00	00000000	00000000	00000000	000000	000000	000000

EXHIBIT VII

COMPENSATION INSPECTION RATING BOARD

370 SEVENTH AVENUE

NEW YORK

POLICY YEAR

Date _____

Dear Sir :

RE: ASSURED:
POLICY NO. FILE NO.
SERIAL CARD NO.

Your experience card covering the above appears to be incorrect as indicated in the paragraphs checked below. It will be necessary to rebill your assured to file a corrected experience card on this case. Care should be taken to avoid repetitions of such errors.

1. You have failed to charge the loss and expense constant.
2. The loss and expense constant and minimum premium should have been short rated or pro-rated to correspond with the period the policy was in force.
3. Please submit individual report for Claim #
4. You have assigned losses to classification for which there is no audited payroll; we have reassigned them to code
5. You have apparently divided payroll on an arbitrary or percentage basis. If proper records were not kept, all payroll involved should have been assigned to the highest rated class.
6. Payrolls appear to be estimated instead of audited, although you have not indicated that audit was impracticable.
7. Kindly submit your final audit.

Very truly yours,

ZL

STATISTICIAN

EXHIBIT VIII

COMPENSATION INSURANCE RATING BOARD							TABULATION OF NEW YORK EXPERIENCE			SHEET NO. 110			
SHEET NO.	TRANS. ACTION	COVERAGE	TERM	TYPE OF RATING	INDUSTRY SCHEDULE	PREMIUM SIZE	premium CARDS			PURPOSE OF TABULATION			
0110	1	1	0	0	01	04	POLICY YEAR 1928			For Master Cards <small>PRINTED FOR MASTER CARDS ON "FINAL"</small>			
			Payrolls				Payrolls				Manual Rate	Average Rate	Remarks
24115	01	S	220943				2444						
24115	04	S	62536				730						
24115	06	S	40580				412						
24115	07	S	17921				246						
24115	08	S	38560				439						
24115	01	S	98523				1322	380260	4271	1.17	1.12		
24115	02	S	51197				793						
24115	03	S	59582				740						
24115	04	S	71824				940						
24115	05	S	24042				317						
24115	06	S	40997				525						
24115	07	S	62143				1390						
24115	08	S	42931				517						
24115	09	S	5078				773	471544	6544	1.59	1.39		
24115	10	S	22488				773						
2532	01	S	598604				553	1260	1011	2.23	3.66	Short Term	
2532	02	S	1305				1305						
2532	03	S	232730				780						
2532	04	S	964490				2897						
2532	05	S	462474				1384						
2532	06	S	831222				392						
2532	07	S	936168				2799						
2532	08	S	268739				799						
2532	09	S	829272				2495						
2532	10	S	272				272	5310148	16404	.32	.31		

EXHIBIT VIII

EXHIBIT X

COMPENSATION INSURANCE RATING BOARD			TABULATION OF NEW YORK EXPERIENCE				SHEET NO. 62	
SHEET NO.	TRANS-ACTION	COVERAGE	TERM	TYPE OF RATING	INDUSTRY SCHEDULE	PREMIUM SIZE	Loss CARDS	PURPOSE OF TABULATION
0052	2	0	0	0	00	00	POLICY YEAR 1928	For Master Cards <small>INSERT FOR MASTER CARDS ON "FINAL"</small>
Kind of Inj.	Class	No. Tr.	Losses Incurred	No. of Claims	Losses Incurred	No. of Claims		
4	6010	C18	1000	1				
4	6010	058	936	2				
4	6010	078	1719	2				
4	6041	018	4321	12				
4	6041	038	3750	4				
4	6041	C48	3350	9				
4	6041	C58	4981	1				
4	6041	068	4264	6				
4	6041	068	17284	20				
4	6041	078	2072	2				
4	6041	C88	6380	4				
4	6041	108	1772	4				
4	6041	118	3187	6				
4	6041	128	953	2				
4	6042	018	23781	36				
4	6042	028	2455	5				
4	6042	C38	13034	31				
4	6042	048	954	36				
4	6254	058	500	41				
4	6254	C58	170	27				
4	6254	C68	13179	10				
4	6254	078	5306					
4	6254	C88	13274	20				
4	6254	C98	568	1				
4	6254	108	4901	13				
4	6254	118	20917	36				
					3655	5		
					47814	70		
					212028	350		
EXHIBIT X								

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EXHIBIT XI

COMPENSATION INSURANCE RATING BOARD					TABULATION OF NEW YORK EXPERIENCE		SHEET NO. 60		
SHEET NO.	TRANS-ACTION	COVERAGE	TERM	TYPE OF RATING	INDUSTRY SCHEDULE	PREMIUM SIZE	Risk CARDS	PURPOSE OF TABULATION	
0060	5	0	5	0			POLICY YEAR 1988	For Master Cards <small>INSERT "FOR MASTER CARDS" OR "FINAL"</small>	
	Ind. Sched.	Prem. Size	No. Risks	Rt. Yr.	Payrolls	Premiums	Losses Incurred	Constants Loss.	Exp.
	U	1	1		13059	11507	90000		
	U	1	1		9847	11980	00000		
	U	1	1		5171	5333	00000		
	U	1	1		7506	7233	50000		
	U	1	1		1199	1568	10000		
	U	1	1		1340	1765	20000		
	U	1	1		6623	9939	00000		
	U	1	1		1166	1598	10000	9085	6122
	U	1	1		1323	1744	11800	9644	6693
	U	1	1		7344	9944	11000	5008	3577
	U	1	1		9143	1354	13000	6203	4599
	U	1	1		3327	494	10500	1037	6722
	U	1	1		4409	722	10500	6603	4622
	U	1	1		7749	1007	10500	4008	2588
	U	1	1		5421	771	8000	304	201
	U	1	1		521		5000		
	U	1	1		5213	774	72		
	U	1	1		7632	955	10000	4003	
	U	1	1		7333	1322	10000		
	U	1	1		3347	971	10000		
	U	1	1		7040	1108	10000		
	U	1	1		7300	1111	10000		
	U	1	1		7080	1111	10000		
	U	1	1		6622	906	10000		
	U	1	1		1093	77	10000		
	U	1	1		9333	104	10000		
	U	1	1		588	22	10000		

EXHIBIT XI

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