ABSTRACT OF THE DISCUSSION OF PAPERS READ AT THE PREVIOUS MEETING

ACCIDENT AND HEALTH INSURANCE PAPERS PRESENTED AT THE MAY, 1935 MEETING

VOLUME XXI, PAGES 235, 291, 303

WRITTEN DISCUSSION

MR. J. M. POWELL:

It is certainly gratifying to men in the accident and health business to see three papers on that subject presented at one meeting of this Society.

Mr. Miller in his paper has gone back to the origin of non-cancellable health and accident insurance in this country and, therefore, his paper should be of particular value to students of that subject.

In his reference to reasons for unsatisfactory experience with life indemnity coverage, particularly as it relates to disability benefits in connection with life insurance policies, I believe sufficient importance has not been given to the lack of proper discrimination in underwriting principles between life insurance and the disability feature. In life insurance companies there was a tendency for a number of years to treat a risk who was acceptable for life insurance as acceptable also for disability benefits.

Mr. Miller also ventures the opinion that to write similar policies, one as cancellable and the other as non-cancellable will result in adverse selection. By this, no doubt he feels that the poor risk will take the non-cancellable policy and the better risk will take the cancellable form to get the benefit of a reduced premium. In our own experience under similar policies, the loss ratio under the cancellable form has been somewhat less favorable than under the non-cancellable form. This, however, may be due to the fact that many border-line risks have been issued the cancellable form of policy and not permitted to have the non-cancellable form. It is perhaps unfortunate that the life indemnity coverage has proved so unfavorable. Without doubt, such coverage meets an economic

need, but it also brings with it such problems of administration, and, in the line of present experience, requires such high premiums to be charged that the benefit to the honest applicant is not worth the premium required.

In Mr. Hart's paper, he has clearly shown the effects of too great liberalization and the steps which have been taken to place the commercial accident and health business on a more satisfactory basis.

Under the report on health insurance published by the Bureau of Personal Accident and Health Underwriters, to which Mr. Hart refers, much information can be obtained as regards the best principles to be followed and the mistakes to be avoided in the writing of health insurance. One of the most outstanding facts is the unfavorable experience on the higher amounts. This is particularly noticeable as brought out by Mr. Crane in his paper, as, of course, reinsurance deals almost entirely with the larger amounts.

For many years, a number of leading underwriters have considered that health insurance could not be written at a profit. This view, however, is open to a decided difference of opinion, for many companies that restrict their limits to the smaller amounts are at the present time showing favorable results. Competition is usually a desirable factor for any line of business and accident and health insurance is no exception. However, companies should learn from past experience that the introduction of unsound principles should be avoided regardless of competition.

RECENT DEVELOPMENTS IN COMMERCIAL ACCIDENT AND HEALTH INSURANCE—WARD VAN BUREN HART

VOLUME XXI, PAGE 291

WRITTEN DISCUSSION

MR. MAURICE L. FURNIVALL:

This is an excellent paper for a student of casualty insurance who has no direct personal connection with the accident and health end of the business. It covers its subject completely and yet concisely.

Being so concise the paper gives us the opportunity in discussing

it to add minor items here and there and to enlarge on some of its features.

In listing the main coverages of the typical accident policy one was omitted which we feel was of sufficient importance to have been mentioned. It is that portion of the policy which is commonly called "elective benefits." These are benefits which a claimant may elect to receive in lieu of weekly indemnity on account of certain specified injuries. In the table which shows the allocation of the total rate to the separate benefits provided by an accident policy, the rate for the elective benefit is included in "total disability."

Mr. Hart's paper discusses the unfavorable experience on accident insurance in recent years, and gives several reasons for it. It is true, as he says, that all too often accident insurance was treated merely as a side line by some casualty companies, being used as a feeder for other lines of insurance. Then he goes on to say that because investments were profitable, little attention was paid to the rates for which the accident contracts were sold and so underwriting losses were incurred. Granted, the rates were inadequate; but the treating of the line as intrinsically unimportant and the neglect to apply strict underwriting principles also should be blamed for some of the rather startling loss ratios. Had the rates been at their present levels the business so handled still would have produced unbearable losses.

The increase in deaths due to the automobile hazards has had an important effect. The type of person to whom accident insurance is sold (about 80% are in the preferred class or are professional men who are classified higher than preferred) is the type which has driven automobiles for a good many years. Mr. Hart says that recent accident experience shows that 30% of the death losses have been due to the automobile hazard which fifteen years ago was negligible. We must take exception to this statement. It is necessary to go back more than twenty years to find the time when automobile deaths were negligible. As long as fifteen years ago, automobile deaths accounted for almost 30% of the accidental deaths among accident policyholders, and the percentage has increased since then.

Mr. Hart points out that bureau experience compiled for policy years 1931 and 1932 would indicate that the rates charged for the

death benefit portion of an accident policy are still inadequate if we did not realize that 1931 and 1932 were abnormal years.

Accident policies, of course, are not intended to provide benefits on account of deaths from suicide. However, we all know that suicides are often difficult to prove, and hence many accidental death claims are doubtless paid on account of them. The experience on life insurance death claims shows that at the peak, which occurred in 1932, of what might be called the epidemic of suicides, over 10% of the number of claims and over 15% of the amount of claims were definitely attributed to this cause. These percentages were more than double those of normal years. We have some figures on accidental death claims, based, it is true, on rather a small exposure, which show that compared to the death rate of the late 1920's, there was an increase of 19.5% for 1931, and 20.5% for 1932. Since 1932, the rate has dropped sufficiently to indicate that these were abnormal years.

The two most important things that have happened to accident insurance in recent years are the standardization of contracts and rates and the introduction of the medical reimbursement feature.

Mr. Hart's paper covers the Bureau's work and its results very completely. Of course there are many details of the work in connection with the rates and the compilation of the experience which he could have brought out had he wished. We agree with his idea that they are not essential in a paper of this kind. However, we should like to mention the treatment of outstanding claims in the Bureau's experience.

The experience for a policy year is closed as of June 30 in the second following year. As of that date, all companies submit a list of their outstanding claims, which are valued by the statistical committee of the Bureau. The committee accepts the companies' estimates on claims which are in litigation or on policies which have a limit on the indemnity paying period. All other claims are valued on the basis of Cammack's Table for Disabled Lives. These values in terms of days of disability are added to the days of disability reported by the companies as paid for up to June 30.

As we have seen, competition for business which had been reasonably profitable prompted the inclusion of more and more coverage in the contracts without commensurate increase in rates, until for the purpose of attracting new business the line was brought to

the point where the companies which achieved their goals only increased their underwriting losses.

What was really wanted was a new idea to spur the sale of a type of insurance which we might say had fallen into the doldrums of familiarity. For if there is any line of insurance which is sold rather than bought it is accident insurance.

Fortunately just at the time when the companies decided something had to be done to put the business on a sound basis, the medical reimbursement feature was being introduced. As a result the agents had something new to offer. It took the sting away from having to go out and sell less for the same amount, for they had something additional to sell which the public really wanted. The field of prospects was enlarged to include, besides the man, all the members of his family between the ages of 18 and 64.

So it has come about in the last few years that accident insurance has been put on as sound a basis as it ever enjoyed and in addition the scope of its coverage has been broadened, and its field of operations widened.

AUTHOR'S REVIEW OF DISCUSSION

MR. WARD VAN BUREN HART:

Fortunately, Mr. Furnivall caught the omission in the paper of any reference to "elective benefits." This benefit is so prevalent that for ordinary rate making purposes it is convenient to merge the experience on it with that of the total disability. Although it is possible to tabulate the claims paid under the "elective benefit" and compare them with the exposure or earned premiums, the result obviously does not measure the cost of the benefit, since most of the claims would have been paid under the total disability clause if the "elective benefit" had not been included in the policy. The credit which might be given in rate making for elimination of the "elective benefit," while existent, would probably be too small to measure.

We also have the situation of a policy with "elective benefits" for specified injuries included but with no weekly indemnity, so that they cease to be elective, to use a somewhat Irish expression. In such a policy this benefit is usually known as the "specific

benefit." Today the most common combination is found in a policy providing dismemberment, "specific benefit," and medical reimbursement, with or without death benefit. In such a case the claims paid for the "specific benefit" constitute a real element of cost and naturally are considerably more than the corresponding cost in the weekly indemnity policy, where the claims are in lieu of weekly indemnity.

Incidentally, the dismemberment benefit is, to a certain extent, an elective feature. The policies of most companies provide that in event of loss of two feet, two hands, or two eyes, the policyholder may immediately elect total disability benefits for life. An examination of the claims of most companies would reveal that the claimant preferred utilizing this prima facie evidence of permanent disability to receiving the direct dismemberment benefit. However, in the case of less serious dismemberments, such as the loss of one hand, the clause would only be elective to the extent that the claimant could demonstrate actual total disability. This might be possible under the older type of policy using the "his occupation" language but would be much less likely under the newer "any occupation" language. On the other hand, if the policy covered death and dismemberment only, he would receive the direct dismemberment benefit, whether the loss was of one or two members.

COMMERCIAL ACCIDENT AND HEALTH INSURANCE FROM THE STANDPOINT OF THE REINSURANCE COMPANY— HOWARD G. CRANE

VOLUME XXI, PAGE 303

WRITTEN DISCUSSION

MR. ARMAND SOMMER:

Mr. Crane's article on Commercial Accident and Health Reinsurance is of real interest to the accident and health fraternity as it is one of the very few papers commenting on the very important subject of accident and health reinsurance. Although, as Mr. Crane points out, the amount of commercial accident and health written by casualty reinsurance companies was only slightly

in excess of two million dollars, nevertheless, this reinsurance is, under present conditions, a very vital part of every company's accident and health program.

It would be interesting to speculate on the changes which would be necessary in the accident and health field providing there were no reinsuring facilities. While at first glance such a contingency would appear to be very disastrous to the accident and health business, perhaps the changes necessitated by lack of reinsurance facilities are exactly the remedial measures necessary in the accident and health business. Under present methods of commercial accident and health business, principal sums or weekly indemnities are written in excess of the shock loss that a company can absorb. These policies result in reinsurance. If no reinsurance were available a certain amount of large indemnities on particular individuals might be written by spreading the risk among several companies, but there is little doubt that the aggregate amount of this business would be greatly reduced. Although these larger indemnities are reinsured over the net retention, the accident and health business would be far better off without the larger risks. Even assuming a company were psychologically able to shrug its shoulders on underwriting large cases with the thought that the reinsuring company absorbs the excess coverage and that, regardless of experience on the accident and health business, the reinsuring company was profiting sufficiently on other casualty lines so that the reinsurance would be secure, a company cannot lose sight of the fact that their own hazard is much greater due to the larger policy. This fact is, of course, the essential life saver of the reinsuring company in the accident and health field.

Most companies are, of course, sincere in wanting to give the reinsuring company a profit but irrespective of this consideration, in cold dollars and cents, it is very necessary that the originating company carefully underwrite every case which is reinsured. The very fact of the policy being large enough to reinsure necessitates careful, searching underwriting. The liability underwriter or the executive who is not versed in the accident and health business is often impatient and somewhat annoyed at the accident and health department that won't take a jumbo line on a man of unquestioned financial strength. Many of us have often heard the argument that the man in question is the best risk in the world

and there is no reason why we can't play an important part in his $200,000 principal sum and $2,000 monthly indemnity program, especially since the reinsurance company takes care of our excess liability.

There are two chief reasons why we can't participate in this type of case. Many natural deaths and prolonged illnesses have an element of the accidental, and if a large amount of money is at stake, a legal fight will frequently ensue. In addition, whenever you get beyond the bare subsistence level or at least a comfortable living pension, you are courting conscious or unconscious moral hazard. For this reason, regardless of reinsurance facilities, the companies are carefully abstaining from jumbo lines.

Mr. Crane elaborates somewhat on the fact that the reinsuring companies are willingly taking a loss on accident and health due to profits on liability and other reinsured lines from the originating company. This, perhaps, presents a rather vicious circle in which the other casualty departments are not entirely virtuous. Let us attempt to divide accident and health reinsurance experience into two parts, considering the source of the business.

1. Those companies having accident and health departments run separately and not dominated by other casualty lines.
2. Those accident and health departments which are in the final analysis merely a service line for the company dominated, and to some extent, administered by casualty officials not especially versed in the accident and health lines.

The reinsuring companies would, I am confident, find that in class (1) the experience would be satisfactory, while in class (2) the results would be disastrous, all of which might tend to prove that where the accident and health departments are primarily service departments for liability agents it is only fitting that the liability departments help absorb reinsuring losses. The point of this line of reasoning is that a careful study should show that the accident and health business, if properly managed, will stand on its own feet reinsurance-wise.

Mr. Crane has no comment on the very interesting feature of facultative reinsurance in the accident and health business. Although a few years ago facultative reinsurance could be placed fairly freely in the larger centers, particularly in New York City, to-day there is almost no facultative market. Of course, faculta-

tive reinsurance in the accident and health field is a thankless and hazardous line. Generally speaking, those companies who can underwrite profitably have treaties to take care of all cases except the more drastic ones, and those particular cases are just the ones that any company wants to avoid.

AUTHOR'S REVIEW OF DISCUSSION

MR. HOWARD G. CRANE:

I wish to thank Mr. Sommer for his review of my paper. In general I am in agreement with his comments.

I did not, however, intend to convey the impression that reinsurance companies are willingly taking losses on accident and health business due to profits from liability and other lines. It is true that underwriting losses on accident and health reinsurance have grown to be more or less the expected result, but I believe the reinsurers are taking these not willingly, but with reluctance.

Mr. Sommer expresses the opinion that as respects companies whose accident and health departments are run separately and not dominated by other casualty departments, the reinsuring companies would find the experience satisfactory. I agree that from such companies accident and health reinsurance is likely to be more satisfactory than from companies transacting accident and health business more or less as a service line. However, I feel sure that even companies whose accident and health departments are free from outside interference experience a greater than average loss frequency on large policies, so that it is difficult for a reinsurer to realize a profit unless it has the benefit of a differential of several points in its ceding commission allowance. It has been the experience of the company with which I am associated that even with companies specializing in accident and health it is difficult to arrange a treaty on a profitable basis.

As for companies whose accident and health departments are primarily service departments for liability agents, there may be some justification for the liability departments helping to absorb accident and health reinsurance underwriting losses, although I believe it would be much more sound for each department to stand on its own feet as respects reinsurance.

I am glad that Mr. Sommer has referred to facultative reinsurance, since, for the sake of completeness, it might have been well

had I touched upon this in my paper. In my opinion, reinsurance of accident and health business on a facultative basis is uneconomical and can never satisfactorily fill the needs of a direct writing company. Facultative reinsurance to any material extent can only be placed at the expense of considerable time and effort on the part of the accident and health underwriter. On the other hand, as Mr. Sommer points out, if reinsurance is sought only on those cases where reinsurance is most essential, it will be difficult to find a company willing to accept the reinsurance since these will be just the cases that any company wants to avoid.

A STATISTICAL ANALYSIS OF THE BENEFIT PROVISIONS OF THE COMPENSATION ACTS—J. J. SMICK

VOLUME XXI, PAGE 257

WRITTEN DISCUSSION

MR. N. M. VALERIUS:

In Part I of this paper are presented calculations of the benefits of the various compensation acts in the United States along somewhat new lines. In the administration of the compensation system, comparisons based on similar calculations are often made, but the emphasis is on the comparative loss cost to industry or carriers, whereas in comparisons drawn from Mr. Smick's work the emphasis will be on the relation between the benefits afforded under the various state acts as they affect the worker or his dependents.

This subject is of social interest and not specifically or primarily of insurance interest. It is, however, the obverse aspect of loss cost and, while the object is somewhat different, Mr. Smick has used in his calculations the same method that has been time-honored by twenty years of use in the business for law differential calculations. In explaining the calculation of his results, Mr. Smick has accordingly contributed an exposition of the practice in the calculation of compensation law differentials (except for medical benefits). He has also given some comparisons of the theoretical results produced and data of experience. These two matters occupy Part II and Part III of the paper.

There has not been published before in the *Proceedings* or elsewhere, I believe, a presentation of the actual process of calculation in spite of the fact that there is a considerable literature on acci-

dent tables and law differentials. To students of workmen's compensation insurance technique, Mr. Smick's paper is welcome for this reason and the comparison of results with experience is also interesting and valuable and goes far to justify the method of law differentials. The main objective of the paper, the results in Table 1 and the general discussion are, of course, of wider interest.

Part I of the paper discusses the method and unit of measure for the determination of average benefits. It rejects experience for two reasons: it is not available in sufficient volume in detail in all states and it would bring in other factors than the benefit provisions. It should be remarked, however, that Mr. Smick wishes to take into consideration one of the most important of the other factors, the different wage levels in the states, in his evaluation of the benefits. In the larger states, in the more well-defined subdivisions of injury, it would seem the experience might give more accurate absolute indications but for comparative purposes the same basis throughout may be best. As to the unit of measure, the conclusion is that the comparison of benefits should be made not in monetary amounts but in terms of units of weekly wages as best measuring the relation of the compensation to the injury. The argument for this is ably presented. The reduction of all monetary benefits, even including medical, to equivalent units of weekly wages is originally the common measure devised by casualty insurance actuaries for relative cost calculations, suggested by the fact that benefits are most often stated in terms of weekly wages. Mr. Smick suggests that the same unit is the best measure of the absolute benefits from a social point of view.

It seems to me there may be one theoretical inconsistency in the bodily adoption for this purpose of the regular method underlying the law differentials. As will be noted from Tables 9 and 10, all benefits are commuted to a value-at-inception basis except those payable for less than 52 week terms. There can be no doubt that this is appropriate for the original purpose of indicating the premium required but its appropriateness when considering the benefit to the worker and his dependents is less certain.

While advocating the importance, in the determination of the liberality of any act, of the wage level upon which the act operates, Mr. Smick would probably not take issue with the practice in the compensation business of calculating law differentials be-

tween states on the basis of one average wage distribution. When questions as to the underlying reasons for different levels of compensation rates in different states, and similar questions, arise, these differentials segregate the relative effects of the laws, other conditions average, which seems a useful concept.

Table 1 presents Mr. Smick's conclusions as to the values with emphasis on the columns headed "Equivalent Duration in Weeks." Taking the last column, the states may be arranged as follows from most liberal to least liberal with respect to indemnity provisions, the states bracketed having the same value in the table:

Arizona	Maryland	California	Oklahoma
New York	Missouri	Pennsylvania	Iowa
North Dakota	Ohio	Idaho	Rhode Island
Dist. of Columbia	Oregon	Indiana	Tennessee
Wisconsin	Maine	Kansas	Alabama
Nevada	Nebraska	South Dakota	Colorado
Washington	New Jersey	Connecticut	Georgia
Minnesota	Massachusetts	Kentucky	New Hampshire
West Virginia	Illinois	Virginia	Delaware
North Carolina	Michigan	Louisiana	New Mexico
	Texas	Florida	Vermont
	Utah	Montana	
		Wyoming	

It is important to bear in mind that Table 1 and the above ranking are not the result of law valuations alone on uniform assumptions but reflect the laws operating at the wage levels in the respective states with other conditions assumed uniform. The results shown in Table 1 are limited to periods when the wage levels are like those used. Mr. Smick emphasizes the effect of wage scale on Page 263 and in Tables 2 and 3 and Graph II. If, however, the relativities or differentials between states are considered, the results are probably much more stable because the states tend to maintain their relative wage positions, going up and down together under the same economic influences, and the effect in numerator and denominator of the ratios offset each other more or less. As an example take Delaware and the District of Columbia, which have the same average wage, $21.00, in Table 1. The ratio of the benefits in weeks is .54. Suppose the average wage to have risen to $28.37 in each state. The ratio, see Table 2, is now .53 so the old differential is less than 2% in error whereas the former Delaware absolute value has become 12% in error and the District of Columbia value 11% in error.

Relativities are in all probability more indicative than the values themselves, because errors in the theoretical method, if any, are likely to offset each other, to some extent, in the members of a ratio. Mr. Smick mentions this point on Page 285, but it must not be understood to confirm the calculations underlying any of the values given in weeks or dollars. The offsetting effect will occur only when comparisons are made between acts.

None of the tables or the derived ranking given here can be used for comparisons of compensation act loss cost since the very important factor of medical benefits and cost has been disregarded entirely. The summary of medical benefits in Table V conveys well the status of the acts in liberality of medical provisions for the injured but is of small assistance in arriving at indexes. As medical cost composes on the average somewhere near a third of the total loss cost, it is evident that the error in disregarding it might be extremely large.

The reviewer regrets that Mr. Smick treated the medical benefits so cursorily. The problem of a theoretical estimate of medical costs has been dealt with, although a method as satisfactory as that for indemnity benefits has not been and probably cannot be established. In the early years of compensation it was necessary to make medical benefit estimates for rate-making purposes and the following system was devised. For various states the proportion of medical to indemnity benefits in the experience was known. Applying these ratios to the total number of weeks' compensation in accident table evaluations of the state acts, the medical cost for these states was expressed in units of weeks' wages for use with tabular evaluations of any acts with similar medical provisions. From the thus-calculated theoretical values of various medical provisions, final values were selected for certain medical provisions and others were filled in by a process of interpolation. The table for medical cost is given below:

UNIT = 1,000 WEEKS' WAGES

Time Limit	LIMIT IN AMOUNT							
	$25	$50	$75	$100	$150	$200	$500	Unlimited
2 weeks	80	100	112	120	126	130	135	138
3 weeks	94	114	128	137	145	151	158	162
4 weeks	105	124	140	150	161	167	175	180
8 weeks	122	140	156	166	177	185	194	200
13 weeks	135	152	167	177	188	195	204	210
Unlimited	145	162	175	185	196	204	214	225

This table gave the theoretical medical cost in weeks' wages for the 100,000 accidents of the American Accident Table. It was based on experience of policy years 1915 and 1916 and was first used for some of the rate revisions of 1918. Later, because of the increased tendency among carriers to disregard the limitations in injury cases requiring medical attention beyond the statutory provisions, the values below the unlimited were increased by some portion of the difference to reflect relative loss cost in practice.

Certain comments follow, from a reading of Part II and tables. A comparison of the American Accident Table as published in Vol. VII of the *Proceedings* with the present application shows certain discrepancies. Does this mean that the Accident Table should be revised in these particulars? In the published table, the durations of temporary total in permanent partial cases invite a treatment like that for the other pure temporary total cases. In the application, the 3,788 cases have been used as having average durations of 20 weeks for the Major and 5 weeks for the Minor cases. Also the Loss of Use cases are taken at values 90% of total loss cases instead of the tabular 55%. It would be desirable that all the material for a valuation of an act by the American Table, such as the commutation tables for Temporary Total cases referred to, were available. The work tables for Part II are very attractively reproduced; only the annuity symbols in Table 9 may be complained of. Finally, this Part constitutes a valuable reference, illustrating the actual calculation underlying law differentials.

The data of Part III seem to indicate that, for the serious cases, tabular evaluations on the American Table may be given considerable credence in themselves but how much may be given to evalutions of other kinds and all kinds together is still uncertain. It is unsafe to go beyond the accepted application, that is, to produce estimates of relativity between laws.

In conclusion, the writer wishes to call attention to the tremendous amount of thought and work underlying the establishment of statistical results such as those presented. If a general criticism may be made of this valuable paper, it is felt that the Statistical Analysis of the Benefit Provisions as at May 1, 1935, might have been stressed less and the methods of such analysis more.

MR. MARK KORMES:

In these days of sweeping changes in social legislation every thinking individual reflects and inquires as to the cost of the benefits so lavishly bestowed upon classes which are afflicted with the various evils inherent in the present industrial and social system. For this reason not only members of the Society but also the general public will welcome Mr. Smick's contribution to these *Proceedings* since although limited to Workmen's Compensation it acquaints the reader with the method of evaluating costs of benefit provisions of the various State acts.

Mr. Smick very properly begins with pointing out the difficulties involved in the evaluation of the differences as between the acts of the various states and concludes that a comparison is meaningless unless all the benefit provisions are brought to a common denominator. By clear reasoning process he leads the reader to the realization that the best suitable basis of comparison is found by expressing the benefits in terms of duration using as a unit the weeks of wages. Tables 1 and 2, which show both the theoretical average cost per case and the equivalent theoretical durations for several types of injuries as well as for all types of disability, illustrate that while monetary amounts may be higher the equivalent durations are not necessarily so.

The compilation of these tables involved a tremendous amount of work and I feel that I express the sentiments of the membership of the Society in thanking Mr. Smick for the painstaking and laborious task which he undertook in the preparation of this paper.

While Tables 1, 2 and 3 are purely theoretical and are designed to show the difference in the various theoretical estimates depending upon the basis of wages chosen, Table 4 shows the actual results for a number of years and a number of states. Inasmuch as these actual averages are not really comparable with the theoretical figures, it seems to me that the proper place for Table 4 would be after Table 16. Table 16 is based on the experience of ten states and it would be, therefore, interesting to see how close the average of these ten states compares with the average of a larger number of states.

In the second part Mr. Smick gives the details involved in the calculation of the cost of the various types of injuries and also the calculation of the effect of a change in the scale of benefits.

While in Part 3 the author demonstrates the remarkable closeness of actual incurred averages to the averages established by theoretical means, I believe that it may be well to stress at this juncture that the greatest importance of theoretical calculation of benefits, as far as Compensation is concerned, lies in the fact that they permit the calculation of the effect of a change in benefits. The rates for compensation insurance are made on the basis of past experience to apply in the future and it is, therefore, very important to be in a position to adjust the past experience for such changes in the law as have taken place between the time when the experience has developed and the time for which the new rates will apply. The theoretical calculation of the cost of two different benefit provisions for a given type of injury may not represent the cost of each benefit accurately but it will represent, with a great degree of accuracy, the amount of change since the average theoretical benefit under two different provisions is calculated on the same assumptions and in the same manner and, therefore, in taking the ratio of the two average theoretical values the assumptions may be said to cancel out.

In his paper Mr. Smick has not gone into details as regards the evaluation of temporary total disabilities or medical provisions. I feel that it would be of sufficient interest to the student of the subject to have some information on the manner of these calculations beyond the brief note appearing under explanations to Table 10 on page 282. Mr. Smick refers there to commutation columns. Below is shown in fragmentary form a reproduction of such commutation columns as well as the formulae for the calculation of the cost of benefits for states which have a retroactive waiting period as well as those where the waiting period is not retroactive.

AMERICAN ACCIDENT TABLE

Commutation Columns

Temporary Total Disability

(1) x Number of Days of Disability	(2) n_x Number of Cases	(3) $N_x = \sum_{\omega}^{x} n_x$ Number of Cases Lasting x Days or More	(4) $M_x = M_\omega + \sum_{180}^{x} N_x$ No. of Days of Disability Caused by the xth Day and Succeeding Days
1	8,823	95,388	1,670,945
2	8,086	86,565	1,575,557
3	7,282	78,479	1,488,992
4	6,014	71,197	1,410,513
5	5,255	65,183	1,339,316
6	4,606	59,928	1,274,133
7	4,817	55,322	1,214,205
8	3,090	50,505	1,158,883
35	518	11,772	454,681
36	430	11,254	442,909
37	412	10,824	431,655
49	236	7,967	355,740
50	202	6,657	318,651
51	197	6,455	311,994
180	6	586	48,740
181	5	580	48,154
182	6	575	47,574
ω = over 6 mos.*	569	569	46,999*
Total	95,388	..	..

* Average duration 37.8 weeks, hence equivalent to 150,557 days. In order to eliminate the first 182 days, we must deduct 103,558 days (= 569 × 182).

If we denote the cost of Temporary Disability expressed in weeks of wages for an act having a waiting period of w days which is retroactive in r days by $C_{w:r}$ and the rate of compensation by R we can easily find that:

$$C_{w:r} = \frac{R}{7} \cdot (M_{w+1} + wN_{r+1}) \qquad (1)$$

If the waiting period is not retroactive we have

$$C_w = \frac{R}{7} \cdot M_{w+1} \qquad (2)$$

It will be of interest to show an illustration of the use of the above tables and formulae and I have chosen for an example the evaluation of the New York Assembly Bill No. 1740, Introductory No. 1594 which became law as of July 1st, 1935. This bill changes the retroactive feature of the waiting period from 49 days to 35 days. Below is shown the calculation of the effect of this amendment:

(1) Cost in Weeks' Wages — 7-day waiting period retroactive at 49 days*.....	114,865
(2) Cost in Weeks' Wages — 7-day waiting period retroactive at 35 days*.....	117,932
(3) Indicated increase in temporary total benefits (2) ÷ (1)	1.027

* Calculated by the use of formula (1).

EFFECT OVER ALL

Kind of Benefit	(1) Policy Year 1932 Losses Incurred	(2) Indicated Increase (Line 3 above)	(3) Losses Adjusted for Amendment (1) × (2)	(4) Over All Effect (3) ÷ (1)
Temporary Total...	5,446,727	1.027	5,593,789	..
All Other.....	19,460,721	1.000	19,460,721	..
Total of All Losses.	24,907,448	..	25,054,510	1.006

As regards medical benefits, I am not surprised that Mr. Smick has limited himself to a summary of benefits provided by the various states shown in Table 5. At the present time we do not know of any scientific method to evaluate the cost of medical provisions nor do we have statistics in a form which would lend itself to an interpretation and investigation of this character. It may be noted, however, from the New York experience shown below that the medical cost has developed from insignificant beginnings into a very substantial portion of the compensation benefit and at the present time it constitutes approximately 20% of the rate:

Policy Year	(1) Medical Loss Ratio on Actual Basis	(2) Medical Loss Ratio on 7/1/34 Level	(3) Ratio of Medical to Total Losses	(4) Ratio of Medical to Indemnity Losses
1917	8.5	5.0	16.4	19.7
1918	7.9	4.9	14.3	16.7
1919	9.3	5.8	17.7	21.5
1920	10.0	6.4	20.5	25.9
1921	13.0	8.5	23.0	29.9
1922	15.2	9.9	23.3	30.4
1923	16.0	10.0	23.0	29.9
1924	16.0	9.8	23.7	31.0
1925	14.6	10.2	24.6	32.7
1926	14.6	10.7	25.2	33.7
1927	15.1	11.1	25.7	34.6
1928	16.5	11.6	25.5	34.3
1929	18.1	12.5	26.8	36.6
1930	19.4	13.4	28.8	40.5
1931	19.6	15.7	31.3	45.6
1932	19.8	17.3	32.5	48.1
1933	19.3	17.5	33.4	50.1

Last, but not least, a few words should be said about the difficulties encountered by the actuary when legislation is passed providing benefits, for the evaluation of which there is no statistical basis available. As an illustration, I would like to cite the recent New York law amendments with reference to medical care and occupational disease. The first of these changes removes the control of medical treatment from the carriers and employers by giving the employee an unrestricted choice of physician. It further provides for the establishment of a minimum scale of fees. The evaluation of a change of this type is well nigh impossible. It depends upon so many unknown factors that no actuary could venture even to guess its probable effect, although the general concurrence of opinion is that it will tend towards still higher costs of medical benefits. In this connection I would like to add that the National Convention of Insurance Commissioners is perturbed about the rise in medical costs and has instructed the National Council to collect statistics which would throw some light on the cause of this increase. The National Council is now perfecting a plan of reporting individual medical claims which is designed in the main to yield statistical data which would permit to analyze the costs of medical treatment as well as the corresponding durations of disability not only by various locations but

also by the type of doctors, that is, whether the treatments were given by the physicians controlled by the carriers or others.

As regards the occupational disease amendment of the New York law which makes all and any occupational disease compensable after September 1, 1935, the actuaries were again faced with a problem of making estimates of the cost without any available statistical information as to the incidence of claims. On the basis of investigations conducted by special commissions (as, for example, the Massachusetts Legislative Commission and the U. S. Dept. of Health) and based on the literature developed in connection with the cost of certain occupational diseases in foreign countries, the actuaries were forced to make a judgment estimate of the incidence and average cost of the diseases referred commonly to as dust diseases and make rates on the basis of such assumptions. For further details, the reader is referred to a paper on this subject by A. G. Smith.*

From the above remarks it may be very well seen that although Mr. Smick's paper gives one an impression that the manner of calculating law benefits is a completely worked out procedure along scientific and mathematical lines, actually there are a great number of important problems for which at the present time there is no set theoretical procedure.

I hope, therefore, by these notes to arouse sufficient interest in the problem in the younger generation of actuaries who, as time progresses, will have the opportunity to conduct original research and evolve schemes for a scientific evaluation of such benefits.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. J. J. SMICK:

Messrs. Kormes and Valerius have been kind enough to review and discuss this paper. Although they suggest possible improvements and additions, they seem to be in agreement with the author on one of the main points stressed in the paper; namely, that the better basis of determining relative benefits is by means of durations and not monetary costs.

Mr. Valerius, in his discussion, has gone into some detail on this

* Page 50 of this volume.

subject. He points out that in actuarial work, it has long been customary to use week's wages in the calculations. This usually has been the aggregate of the present values of the durations provided by law, as applied to the distribution of the American Accident Table, and only in unusual instances has it been in units which would also reflect the wage scale and monetary limits underlying compensation benefits. The author is inclined to agree with Mr. Valerius that in many instances it may be advisable to continue calculating law differentials on a common wage for all states. In making comparisons of benefit scales, this procedure is subject to criticism. The important consideration in such comparisons is the degree to which benefits are a substitute for the loss of income. The use of a common wage basis in determining durations, or of monetary amounts, is therefore not a justifiable procedure for constructing tables showing the relative liberality of benefit provisions. Law differentials were originally calculated in connection with rate-making methods. The primary purpose was to convert experience incurred on the basis of one law to the benefit level of another so that the experience could be combined for rate-making. Their use for comparisons of liberality of benefit provisions was of second importance. There are in use a number of such tables and many charts and graphs based on such calculations. Although correct to use for many purposes, they are a poor basis to use as a comparison for relative liberality of benefit provisions, or for determining advisable changes in compensation acts.

As Mr. Valerius states, the results exhibited in the tables are limited to periods when the wage levels are like those used. He further points out that the relativities between states are fairly stable when the values are based on either the same low or high wage. It was this condition that was partly responsible for the presentation of Table II, based on a high average wage of $28.37. Even with reviving industrial activity this level will not be reached for some time, and interpolation between the values shown in Table I which in every instance are based upon a lower wage scale and those on Table II will give reasonably accurate results. If it is desired to have more exact results, the values may be recalculated, on the basis of the procedure outlined in Part II of the paper.

It is the author's opinion that the importance of medical indices

is greatly overestimated. There is not as much variation in the medical benefit provisions of the Compensation Act as in the indemnity benefit. Almost all of the states provide medical benefits unlimited in duration and monetary cost, as shown in Table 5. About 10 states limit medical benefits in both amount and duration, an additional 7 limit the amount while 3 limit the duration. In actual practice these limitations are usually disregarded and medical benefits over and above these limits are provided to the injured workman if it is felt that such additional treatment is warranted. Furthermore, whenever revisions of benefits are contemplated, unless the medical benefits are by law or in practice unlimited, almost the first benefits to be amended are the medical provisions, and consequently, it may be expected that uniformity may sooner or later be reached.

Irrespective of the value of such indices, the author feels that the outline Mr. Kormes gives of future possibilities based on new statistical data, and the description and table Mr. Valerius presents of a procedure that was devised when there was greater variation in medical benefits, are of value and serve to round out the material presented in the article. Modifications of the table presented by Mr. Valerius are still in use and are especially helpful when changes in medical benefits are contemplated in legislative proceedings. It is, however, inadvisable to use this table in comparing benefits of one state with those of another. Mr. Kormes shows that the proportion of medical cost to indemnity, in New York, has risen from 30% to 50% in the years 1922 to 1933. During this period the law provided medical benefits unlimited in amount and duration. In a state with a law limiting benefits, the cost will not rise as rapidly and a comparison which may be valid on the basis of 1922 cost may be incorrect for 1933, although the legal benefit provisions of the two states have not changed.

Both Mr. Valerius and Mr. Kormes regret the omission of some of the tables and auxiliary data used in the calculations. Possibly it might have been advantageous to include this additional information, but the author, at the time the paper was submitted, felt that he had included so many tables, that additional ones, used only as auxiliaries, had better be omitted.

In addition to the points included in the discussions, it seems desirable to add the following note:

It has been pointed out to me by Dr. I. M. Rubinow that a brief historical outline of the development of the method of evaluation of the cost of benefit provisions of the Compensation Acts should have been included in the paper. At the time that the paper was submitted, it was felt desirable, in order to keep what seemed to be a long article within reasonable limits, to free it from digressions and not to include matter not considered absolutely essential to the text. At this time, however, a brief historical review may not be amiss.

In the decade 1910 to 1920, as the movement for the enactment of compensation statutes gained momentum, it became increasingly important to establish a method of estimating the cost of benefit provisions. Two factors in particular forced the development of a scientific procedure; one was the desire to have estimates of the probable cost and comparative value of benefit provisions and the cost of changes in such provisions, and the other, probably the more important, was the need of a procedure that would allow for the use of the experience incurred on the basis of one law to be used in determining rates for insurance under another law.

The first issues of the proceedings of the Casualty Actuarial Society, Volumes 1 to 10, present many articles and discussions dealing with the early aspects of the theoretical procedure and particularly its use and application in rate-making. Nearly all of the leading statisticians and actuaries of the period at one time or another contributed something to the subject, either as members of Committees, or by means of articles and discussions. To mention only a few of the names, there were E. H. Downey, S. B. Black, G. F. Michelbacher, I. M. Rubinow, A. H. Mowbray, B. D. Flynn, H. F. Ryan, S. H. Wolfe, among others.

A rather full and complete discussion of the use of law differentials is presented by Dr. I. M. Rubinow in the article "Scientific Methods of Computing Compensation Rates," *Proceedings*, Volume I, and "The Theory and Practice of Law Differentials," Volume IV, as well as in an article by G. F. Michelbacher, "The Theory of Law Differentials," Volume III.

Dr. Rubinow, in his article in Volume IV, mentions an earlier determination of law differentials, without the aid of an accident table, made by Dr. E. H. Downey and Mr. S. Bruce Black using

as a basis, "A common laborer, earning $2.00 a day, aged 30, with a wife aged 28 and four children aged 2, 6, 8 and 10."

One of the important contributions made by Dr. Rubinow to the scientific procedure was his Standard Accident Table. This was probably the first accident table that was constructed and had wide application, and references are constantly made to it in the early articles on rate-making. It was used principally in computing law differentials, factors to translate experience to a basic law level for the purpose of combining data for rate-making purposes.

The gradual accumulation of experience made the use of law differentials less necessary and shifted the emphasis for law differentials to experience differentials. At the same time the accumulated experience was used as the basis of a new accident table, based on American statistics, the "American Accident Table." Dr. Rubinow's table was based largely on European statistics. A discussion and comparison of the two tables is contained in the article "American Accident Table," by Miss Outwater, in *Proceedings*, Volume VII.

Technical methods also developed and particularly the calculations connected with the wage data. The method presented in Mr. Mowbray's paper, "Legal Limits of Weekly Compensation in their Bearing on Rate-Making for Workmen's Compensation Insurance," Volume IX, was a great stride forward. A more recent paper by Mr. Dorweiler "On Variations in Compensation Losses with Changes in Wage Levels," Volume XVIII, develops the subject still further.

The above rather sketchy outline traces the general development of the method and statistical tables used in estimating the cost of benefit provisions.

INFORMAL DISCUSSION

Automobile Liability Insurance

MR. S. D. PINNEY:

One of the major problems, if not the most important one, confronting casualty insurance companies in this country at the present time is that presented by the Automobile Liability line, particularly as respects the writing of Private Passenger cars. The relatively small proportion of insured automobiles is a challenge to the casualty companies and in addition the companies are confronted with the prospect of an increasing loss ratio on the business which is insured.

The proportion of insured cars has decreased materially from the level prevailing in 1930. Statistics show that for the state of New York the volume as measured by number of car years written shows a decrease of 31.4% for all carriers for policy year 1934 as compared with 1930. Statistics for other states show similar trends, in some cases even more severe than in New York.

Undoubtedly, the depression has played a major part in reducing the number of insured cars. Furthermore, private passenger public liability manual rates have been increased since January 1, 1930 an average of 21.6% for the country as a whole excluding Massachusetts. In addition, the merit rating plan was withdrawn in January, 1932, and this had the effect of increasing the collectible rate level approximately 8%, in addition to the average change in manual rates. Whereas these increases were partially offset by a reduction in the charges for excess policy limits which became effective in January, 1932, it is estimated that the net effect of these various revisions has been to produce an increase of approximately 25% in the average cost of private passenger public liability insurance during the period when the income of prospective purchasers was drastically reduced. This combination of circumstances has caused many drivers to forego carrying public liability insurance and it will require constant study on the part of the casualty insurance carriers to devise ways and means of bringing these people back into the ranks of insured risks.

Various plans have been discussed during the past several years. Certain of these have been designed to make the payment of premiums less painful to the assured, such as the various methods

of paying premiums on the instalment basis. Whereas, undoubtedly this has helped to hold certain business, the effect has been rather less than was originally anticipated.

It has been suggested from time to time that private passenger cars should be written under three-year term policies, the argument being that in this manner there would be a saving in expenses which could be reflected in the premiums charged. However, when consideration is given to the possibility of rate revisions as well as the frequent changes made by the assured, it is evident that there are valid objections to writing the business on a three-year basis. Furthermore, it is doubtful if the writing of policies on this basis would attract an appreciable number of assureds, due to the necessity for collecting 50% of the three-year premium in advance the first year.

The experiment of merit rating ended in failure, due not only to the fact that approximately 80% of all risks were entitled to the 10% credit provided under the plan, but also because a large proportion of the remaining 20% were given the credit more or less illegitimately. It was evident that the plan could not produce satisfactory results from the standpoint of the companies unless it were possible to collect substantial penalty charges from those risks which experienced losses.

An approach to the problem has been to restrict the coverage in various ways in order to reduce the cost. In this connection, it must be borne in mind that most people who take out automobile liability insurance wish to be adequately covered, and therefore any restriction of coverage cannot go beyond a reasonable point.

In this connection, it has been proposed by some that what is needed is a deductible form of coverage. It is claimed that with such coverage the assured would be more careful, since he would be liable for a certain initial portion of the claim. However, statistics show that relatively small rate discounts can be given for any deductible amount which would appear reasonable to the assured. For example, a $100 deductible public liability coverage would permit a discount of only 12.5% in the rate. If public liability and property damage coverage were combined and the deductible amount were to be applied to any claims, either bodily injury or property damage, somewhat higher discounts could be allowed; for example, a $100 deductible applied to bodily injury

and property damage coverage combined would allow a discount of approximately 25%.

The difficulty with deductible coverage, however, lies in the fact that most persons would rather pay the full rates and obtain full coverage than save the small amount in dollars represented by the premium discount and take over the responsibility for the initial portion of the claim.

Furthermore, from the standpoint of the carriers, deductible coverage presents difficulties as regards claim administration. Many claims are not settled for a period of years, and it would be difficult for the carrier to collect from the assured his portion of the claim. Also, there would undoubtedly be cases where the assured claimed that he did not understand the type of coverage he was purchasing and the carrier would have difficulty in receiving reimbursement from the assured.

Attention has been focussed recently on the proportion of losses due to guest claims. Recent statistical tabulations have shown that approximately 16% of the losses are due to claims falling in this category. It has been claimed by some that it would be a reasonable restriction in coverage to provide that guest claims should be eliminated, with a resultant rate reduction of approximately 15%. Undoubtedly, there should be a restriction in the coverage as respects claims due to so-called family guests; that is, claims brought by relatives or members of the assured's immediate family. Many of such claims undoubtedly would not be brought against the assured if the car owner did not carry insurance. However, statistics show that the rates could be reduced only 2% or possibly 2.5% on account of eliminating family guest claim coverage. Nevertheless, it is felt that family guest claim coverage should be eliminated in any event, since such coverage constitutes an undesirable moral hazard.

There is considerable question, however, as to the desirability of restricting the coverage to eliminate guest claims other than family guest claims. It is felt that there would be an adverse selection against the carriers, with the result that in a few years it would be found necessary to materially increase the rates for risks which were written on a full-coverage basis. Also, there would be the danger that many assureds would be sold the restricted form of coverage without fully understanding that the

coverage had been sold strictly on that basis, and the carriers would experience considerable difficulty with such cases in the event of claims brought by guests.

Another approach to the problem has been the suggestion that the present omnibus coverage basis should be eliminated and the individual assured should be educated to the desirability of confining the operation and use of his car to himself. It has been argued that where it is necessary for members of the assured's family to operate the car, each individual operator should be either insured by a separate policy or at least charged a rate for such coverage. One suggestion has been that for risks involving only one or two operators the manual rate would apply, but where there were additional operators there should be various surcharges imposed. Each operator so insured would be named in the policy. In the event of an accident caused by an operator who had not been specifically covered in the policy there would be no liability on the part of the insurance carrier.

There are certain objections to this plan of coverage. In the first place, unless some discount were given to the risks involving one or two operators, it is evident that the cost of insurance would not be reduced but would be increased. Furthermore, the bulk of the risks would probably fall in the average group, by which are meant cases with one or two operators, and the result would be that if a discount were to be given to such risks it would be necessary to charge a substantially higher rate to the small number of risks with more than two operators in order to balance these credits. There is no experience available which would show the differentials which would be made in the rates for varying number of operators per car. It would be difficult to administer such a plan, since there would be too many opportunities for disagreement between the carrier and the assured as to whether he were fully covered in the event of an accident. There would be difficulties experienced in the case of part-time operators, such as students home for vacation, where it would be argued that the full additional charge should not be made. It would be difficult for the company to check up on the number of operators of the assured's car, and there might also be difficulty in determining who was operating the car in the event of an accident. It is feared that under such a plan there would be too much opportunity for

manipulation, similar to that experienced in connection with the merit rating plan.

Another way of popularizing automobile insurance would be to liberalize the coverage without increasing the rates, but it is evident from a study of the trend of the experience in the past few years that there is no margin left in the rates for any such liberalization. It is true that several years ago the property damage standard policy limit was increased from $1,000 to $5,000, and also in certain states the coverage was amended as respects the minimum age of operators covered under the policy, in order to conform with the law in such states. The extension of the property damage policy limit had little effect in writing an increased volume of business, and it is doubtful if the liberalization as respects minimum age of operators should have been made without imposing an additional premium charge.

A review of the private passenger public liability rates charged throughout the country, as well as the trend of experience, indicates that the present system of classification and rating by make-of-car symbol groups (W, X and Y) has outlived its usefulness and either should be revised or completely abandoned. In many rate territories the manual rates for W and X cars are the same, and there is only a slightly higher differential in the rate for the Y cars. In many cases the experience produces a higher pure premium for the W cars than for the X cars and in a number of territories the pure premiums indicated for the W cars and the X cars are higher than those shown for the Y cars. For several years the public liability rates charged in New York City and New York City Suburban have been the same for all cars. For all other territories in New York State the rates for W and X cars at present are the same, with only slightly higher rate differentials for the Y cars. Whereas it is true that this situation does not obtain to the same degree in all territories throughout the country, there is nevertheless strong evidence that the trend is in this direction, and we may ultimately expect to see the elimination of differentials between the present W, X and Y rate groups. It may be argued that what is needed is a revamping of the composition of each rate group. In other words, if the experience were kept by make of car, it would be possible to reassign such experience to different rate groups and set up rate differentials accordingly.

There is some question, however, as to whether this constitutes the real answer to the problem. With the improvements which have been made and which may be expected to continue in the future as respects the mechanical development of the lower-priced cars, coupled with the tendency in recent years for persons of means to purchase lower-priced cars, the old argument that higher claim costs might be expected to result from the operation of the higher-priced cars is rapidly becoming a false premise upon which to set up insurance rates.

It is now recognized that the factors which have considerably more bearing than the make of car, insofar as the production of claims is concerned, are such items as the individual characteristics of the operator; the use to which the car is put; annual mileage; and driving and legal conditions in the territory in which the car is principally operated. Territorial rate differentials are, of course, of fundamental importance and should be maintained. The use of mileage as a basis for classification and rates involves several fundamental objections. In the first place, no practical means has been developed for guaranteeing an accurate reporting of the mileage itself. Whereas it might be mechanically possible to develop a tamper-proof mileage meter, the carriers would still be confronted with the necessity for obtaining accurate reports of such meter readings. In view of the relatively low average premium, the carriers could hardly afford to have a salaried representative audit such reports. Furthermore, there is the objection that if mileage were used as a basis for determining rates we would probably find that the great majority of assureds would fall in the normal or average group of drivers with annual mileage of 12,000 miles or less. Only the small minority would show excess mileage, and consequently if we were to give reduced rates to the normal group it would be necessary to impose substantial surcharges in the case of the small minority. Here again we would have a situation somewhat analogous to that which obtained in connection with the merit rating plan.

The ideal system of classification rating of private passenger cars would be one which adequately measured the individual characteristics of the operator. Unfortunately, no such ideal system is possible, and consequently the problem confronting the carriers is to find a substitute which in a practical manner will

come as close to the ideal as possible. Certain companies have advocated and are using an occupational classification system in the writing of private passenger automobile insurance. It may be that there is more to this than appears to be justifiable upon off-hand consideration. In any event, this should be given careful and thorough consideration by the casualty companies as promptly as possible to resolve these doubts. It has been claimed that the use of an occupational classification system in the writing of automobile private passenger insurance would be analogous to the classification system used in connection with accident insurance. There is, of course, the fundamental difference that automobile liability insurance involves third-party liability coverage, whereas under accident insurance the assured is also the beneficiary of any claim payments. However, it is possible that upon thorough investigation there may be found a consistent differential in the experience according to occupational classes, and therefore it is felt that the carriers should immediately make provision for revising the Automobile Statistical Plan so as to include codes for occupation of the assured.

It would be necessary under such a system to provide for a signed application from each assured, similar to that required in connection with accident insurance. The purpose of such a signed application would be to bring out the information necessary for proper rating of the assured, but it could be argued that it would be a simple matter for an assured to misrepresent the facts in order to secure a lower rating. This feature would require careful consideration in connection with any such plan of occupational rating. It would be interesting to obtain the experience of various companies writing accident insurance as respects this particular point.

The foregoing remarks have been confined entirely to the field of private passenger public liability rates. It is felt that if the casualty companies can solve the problems presented by this particular group of business, which comprises approximately 70% of the total automobile public liability premium volume, they will have progressed a long way toward the ultimate goal of increasing the proportion of insured cars, and it is to be hoped that such an increase may be brought about without sacrificing underwriting profits.

MR. H. J. GINSBURGH:

Our President mentioned this morning in his address the possible desirability of including deductible and excess features in automobile liability insurance. He was developing his subject, I think, along the line of opening up markets for coverages which at present are not generally available. He believes that there is a reservoir of possible buyers existing who do not wish to meet present price requirements, and that we as insurance carriers ought to try to fit our coverage to that market.

I agree with him in general, that it is possible to write certain forms of coverage in automobile liability insurance which will satisfy a given market and which can be underwritten profitably. However, I am not certain that the deductible and excess forms will meet the requirements set by our President.

It does not seem to me to be sound underwriting to write the deductible form of cover generally for the type of clientele which is looking for a less expensive form of protection, i.e., at a premium less than the generally accepted standard of charges. Obviously, such a form of insurance should be written only for a financially responsible insured. Even then the settlement of claims will often lead to controversy and dissatisfaction.

Excess coverage, over sizable limits, might be a desirable form to offer to responsible individuals who feel they can well afford to take the chance of several thousand dollars of loss, but who would like protection for the unusually large claim.

Another suggestion is the offering of limits lower than the present standard $5,000-$10,000. The amount of the discount from 5/10 rates which could safely be given for limits of, say, $2,500-$5,000 would not be enough, in my opinion, to make an appeal to the market mentioned this morning. By far the greatest part of the total loss is made up of the smaller claims. The average claim cost is somewhere in the neighborhood of $300. Unless the nuisance claim is entirely eliminated, it is difficult to see how a marked price reduction appeal can be made by dropping the limits of coverage from the present standard.

One of the ever-present problems in the consideration of automobile liability rates is the question of the probable trend in cost. From the experience of some of the larger states it would appear that the depression did not have a particularly marked effect on

claim frequency. The depression did affect the average claim cost, especially in the rural districts. A reversal in these territories is already becoming apparent. With an increasing claim frequency and an increasing claim cost, the result is obvious.

Those who have reviewed experience on the line know of the continually downward trend shown by property damage pure premiums. It was expected, a year or more ago, that as the country came out of the depression there would be a sharp reversal of that trend. It was thought that rising wage and price levels would have a sharp effect, increasing the cost of repairs both for labor and parts. The latest available compiled experience, however, does not as yet show that effect.

Would it be desirable to look again into the question of offering a complete liability cover, with a single rate including the cost of both bodily injury liability and property damage liability? It is the desire of most underwriters always to write the complete cover including property damage as well as bodily injury, and generally that desire is met. It is interesting, though, to see the difference, territory by territory and state by state, in the proportion of cars having the two coverages compared with those having bodily injury liability only. Whether making the combined coverage the standard form, with a single rate, would be a desirable step at the present time, is hard to say. It would have the advantage that, from the sales viewpoint, it might look better, if bodily injury liability costs were to rise and property damage liability costs were to be stationary or to go down, to make a single rate. Changes in the component elements might thus offset each other, and the insured, continuing to get complete coverage would not have forced on his attention a large rate increase.

The automobile liability lines of insurance have been moving more and more into the field of social insurance. The passage of the Massachusetts Compulsory Act and of numerous financial responsibility acts, have imparted a social tinge to the problems of this part of our business. With this development, more attention has come to be given to the regulation or control of rates for automobile liability insurance. There is a tendency for supervisory authorities to require that rate schedules be filed by the carriers, and adhered to. From such a requirement, it is not a very great step to much closer regulation. It would seem, there-

fore, that it is incumbent upon us to develop a consistent and sound method of making automobile liability rates, one upon which we can stand and which we can offer to supervisory authorities as producing rates fair both to the carriers and to the insuring public.

MR. AMBROSE RYDER:*

Mr. Chairman, Ladies and Gentlemen: With your permission I shall devote myself to a review of certain problems that are of interest to automobile casualty men. It is not my intention to propose any solutions to these problems.

How to rate each automobile is still the big problem of the day. Instead of rating the car we would very much prefer to rate the man at the wheel, because it is he, not the car, that causes the accident. But how is it going to be possible to measure the accident producing possibilities of the man at the wheel and relate these measurements to premium variations, when the company knows practically nothing about the man at the wheel and very often does not know even his name? Even if the company does have the needed information, who is going to decide what the yardsticks shall be for measuring accident proclivities and how these yardsticks shall be applied?

One of the yardsticks would be the age of the driver. I think anyone of experience will agree that he is a better driver at the age of forty than he was at the age of twenty. Perhaps he is no more skillful at forty than at twenty, but certainly he is more considerate and less inclined to take chances. On the other hand, there are people at the age of twenty who are better than others at the age of forty, so the age yardstick is not the only one to take into consideration.

The past accident record is a well known factor, but here again there are two sides to the question. Statistics seem to prove that history repeats itself and that the man who has had accidents in the past is more likely to continue to have them than the man who has not had accidents in the past. On the other hand, there is always the argument that the man who has had a bad scare as a result of a close shave in the past is more inclined to be careful in

* Mr. Ryder spoke by invitation.

the future than another man who has been lucky enough not to have had any accidents. So take your choice.

Likewise, the driver who has had plenty of traffic violations and other police records is not considered as good a risk as the driver whose past record is clear. I do not think there will be any arguments to the contrary, because generally speaking, the man who has evidenced a proclivity for getting into trouble is the type of man who is most apt to get into trouble in the future.

The next question is whether a driver is a better risk because he reacts one-fifth of a second quicker than the average. Various devices have been on the market for testing the reaction times to danger signals. I think these are all very interesting and may possibly prove of value, but generally speaking the person who is quick on the trigger and who reacts very promptly is probably a less desirable risk than the more phlegmatic person who likes to think things over two or three times before he decides to do anything. The latter type will not react as quickly to the sudden danger that presents itself to his oncoming car but on the other hand neither will he be so likely to allow himself to get into a position where any sudden danger will arise that will require a one-tenth of a second reaction. Give me my choice and I will take the man who is not so quick on the trigger in everything he does in life.

If the individual driver is going to be measured for his reactions to danger, it is even more important that he should be measured for his willingness to keep away from danger. In other words, although courage is a splendid attribute in its place, its place is not at the wheel of an automobile. The timid soul is a much better risk than the daring young man who has the courage to drive his car at 90 miles per hour on a slippery road. The best type of risk, therefore, is the person who is really afraid to take unnecessary chances.

Mileage is also an important factor. Theoretically, it is a good yardstick but in actual practice there are many problems to overcome. The man who drives 20,000 miles a year is not necessarily four times as apt to have an automobile accident as the man who drives only 5,000 miles a year; but is he not perhaps 50 per cent more apt to have an accident—other things being equal?

The engineers have made it very difficult for the automobile

underwriters because each improvement in the speed and riding comforts of the car contributes to accident frequency and severity. Engineers have been able to put speed into the automobile faster than the educators and state authorities have been able to put safety-mindedness into the drivers of those automobiles. A man no sooner gets educated to a 35-mile-per-hour speed than the engineers hand him a car that goes 50 miles per hour in perfect comfort. By the time he gets used to 50 miles, they have boosted the speed to 75, and so it goes.

Speed has been stressed a great deal, but riding comfort contributes almost as much to "sudden death" as speed. It is the smooth riding of the modern car at high speeds that gives everyone in the car a false feeling of security. If the car would only rattle and bounce to the real discomfort of the occupants whenever the speed exceeded 50 miles an hour, each occupant would be visibly impressed with the dangers that lurk in high-speed travel. This discomfort would not necessarily deter the driver from driving at a high speed but it would add to his alertness and thereby decrease the accident rate.

The engineers also make it difficult for the underwriters by building magnificent highways and boulevards. Theoretically the accident rate should decrease with each improvement in highways but just the opposite seems to be true. The best risk in the United States today is a 15-year-old rattletrap driven over tortuous, winding, mountainous, dirt roads, in the hands of an old conservative mossback.

Getting away for a moment from the man at the wheel, another very interesting problem for some bright mind to solve is how to eliminate sharp differences in rates between car owners on two sides of a territorial line. Everyone knows that the average automobile owner on one side of the street is certainly not twice as bad as the average on the opposite side, and yet we have a few territorial demarcations where the rates on one side are twice as high as the rates on the other side. True, the actual experience shows that the average car owner in the one territory should pay twice as much as the average in the adjacent territory but some way should be found to taper off large territorial differences on a more equitable basis.

There are, of course, many other rating and underwriting prob-

lems of equal interest to the ones mentioned above, but I think I have mentioned enough to give the casualty-minded plenty to think about.

MR. W. N. MAGOUN:

In order to acquire a clear understanding of any subject, as for example, automobile rate making, it is necessary to discuss not only the general rules but also the exceptions. This is my excuse for confining my remarks to Massachusetts conditions. As you all know, they create a decided exception in the making of automobile rates, yet I believe they are of sufficient interest to warrant a brief discussion.

The Massachusetts Compulsory Motor Vehicle Insurance Law, which became effective in the year 1927, applies to the operation, maintenance, control or use of motor vehicles upon the "ways" of the Commonwealth. Rates for liability insurance under that statute are fixed by the Commissioner of Insurance.

It accordingly has been necessary for the purchaser of automobile liability insurance, who desired to buy such insurance to cover anywhere in the United States and Canada, to purchase also so-called Extra-Territorial coverage, the rates for which are not fixed by the Commissioner. Thus two sets of rates have been necessary in Massachusetts from 1927 to 1935 inclusive.

This year the Massachusetts Legislature has enacted a law, applicable in 1936, excluding from coverage under the compulsory statute, a "guest occupant," defined as—

> any person, other than an employee of the owner or registrant of a motor vehicle or of a person responsible for its operation with the owner's or registrant's express or implied consent, being in or upon, entering or leaving the same, except a passenger for hire in the case of a motor vehicle registered as a taxicab or otherwise for carrying passengers for hire.

At first reading this sounded fairly simple, although obviously indicating the necessity for another set of rates. It immediately became apparent, however, that if guest occupant coverage was to be segregated in the case of a motor vehicle "on the ways," a similar segregation would be required in the case of a motor vehicle "off the ways." Thus both the Statutory and the Extra-Territorial coverage are broken into two parts, and four sets of rates are necessary.

I say "sets" of rates advisedly, for while private passenger cars are the most important type, guest occupants may be found not only in other types of automobiles but even in connection with motorcycles. Hence guest-occupant rates are needed for all the classes for which statutory rates are fixed, except in the case of public automobiles registered for carrying passengers for hire.

Fortunately the Massachusetts Automobile Liability Statistical Plan has provided for reporting "type-of-claimant" data, commencing with the year 1933.

Accordingly, the Massachusetts Automobile Bureau had two years' experience available which, while far from being conclusive, was a lot better than nothing. I was interested in the figures pertaining to guest-occupant losses presented by Mr. Pinney, and noted that they were quite different from the Massachusetts figures.

For private passenger cars for the two years 1933 and 1934, out of total losses incurred of $26,117,057, guest-occupant losses were $2,198,929 or approximately 8.4 per cent in Massachusetts.

With much smaller exposures the percentages of the guest-occupant losses in other classes were—

Commercial Cars	4.8 per cent
Driverless Cars	20.5 per cent
Motorcycles	18.9 per cent

While admittedly these figures were not of sufficient volume to justify much credibility, they were utilized in the determination of rates for guest-occupant coverage in the various classes.

We found that not only the rates but a considerable part of the rules of the Massachusetts Automobile Manual had to be revised, and also that a new policy form had to be prepared.

The 1936 policy will provide coverage for bodily injury liability-statutory, to which may be added one or more of the following divisions of the "Supplementary-to-Statutory" coverage.

Division 1. Guest Occupant upon the Ways of Massachusetts. A person who is a guest occupant of the motor vehicle while upon the ways of the Commonwealth of Massachusetts.

Division 2. Guest Occupant off the Ways of Massachusetts. A person who is a guest occupant of the motor vehicle while off the ways of the Commonwealth of Massachusetts.

Division 3. Not Guest Occupant. A person who is not a guest occupant of the motor vehicle either while upon or off the ways of the Commonwealth of Massachusetts.

The new Massachusetts Automobile Manual, which will be distributed in a few days, will contain a new section relating to the supplementary coverages.

The rate sheets will show three sets of rates for the respective supplementary coverages, under abbreviated captions.

In the case of public automobiles registered for carrying passengers for hire, only the statutory-coverage rate, and a single supplementary-coverage rate are needed, as a passenger for hire is not a guest occupant, as defined.

It is important that both the seller and the purchaser of the supplementary coverages in Massachusetts should clearly understand the application of the liability limits.

All rates and minimum premiums for supplementary coverages are based upon limits of $5,000 each person and, subject to that limit for each person, $10,000 each accident. If one or more supplementary coverages, based upon such limits, are provided, the limits applicable to such supplementary coverages are not in addition to the limits applicable to statutory coverage but for the combined statutory and supplementary coverages the total limits are $5,000 each person and, subject to that limit for each person, $10,000 each accident.

The new Commissioner of Insurance in Massachusetts, Hon. Francis J. DeCelles, is showing a great interest in automobile insurance. This meeting gives me an opportunity to tell you—the company men interested in the actuarial and statistical problems of the business—some of the things the Commissioner has in mind.

He has intimated that he will want—

(a) An analysis of cases in which the insurance company is entitled to reimbursement (whether such right is exercised or not);
(b) A separate reporting of all claims known as "loading and unloading";
(c) Details pertaining to allocated claim expense, and
(d) A reporting of statutory premiums, incurred losses, and loss ratio for each company within each town.

The Commissioner has also indicated that he is interested in automobile fleet rating. He has asked the Massachusetts Automobile Bureau to study the subject, and the Bureau has established a sub-committee for the purpose.

This subject is difficult enough in itself, but when you stop to consider the exceptional conditions in Massachusetts, where we shall have four coverages in various combinations, and in respect of which the Commissioner of Insurance fixes and establishes the rates for some but not for others, it is apparent that the preparation of an equitable and satisfactory rating plan for fleets is not too simple a task.

If I have presumed to take up your valuable time, over what may seem to be purely local problems, I hope, as I said at the beginning, that it has been justified on the ground that full knowledge of any subject requires consideration of the exceptions as well as the general principles.

PRESIDENT GREENE:

In talking to you today, I referred to the possibility of issuing automobile liability coverage for less than the customary minimum limits of $5,000/$10,000. At least one of the speakers has expressed some skepticism as to the practicability of such a plan. As a matter of fact, on the Pacific Coast such a low-limit form of coverage is now being given a trial. A few months ago I had the pleasure of talking to a gentleman, who, I believe, originated this cover. In his state, one of the Northwestern Pacific states, only approximately 20 per cent of all cars were insured. He had his company make an investigation of the percentage of cars involved in serious accidents that were insured, and he concluded that whereas 80 per cent of all cars were uninsured, perhaps 60 per cent of the cars that had accidents were covered by insurance. (The percentages which I have given are not accurate, and are not necessarily those which were quoted to me last spring, but they serve to convey the approximate general situation.) That seemed to mean that there was a great number of uninsured cars in the state that would be good risks, and this conclusion suggested the so-called "one-five-one" policy which is a direct bid for this hitherto uninsured business. "One-five-one" means liability limits of $1,000/$5,000, and a property damage limit of $1,000. This cover is being sold at a considerable reduction from the aggregate premium charge for the usual minimum combination of $5,000/$10,000 for public liability and $5,000 for

property damage; and the particular company to which I am referring seems to feel that the reduction in rates is justified. In this connection, it has been pointed out that if the limit per person is $1,000 your situation as respects the settlement of claims is much easier than the customary one. We all know the part that the plaintiff's attorney plays in the settlement of liability cases. Not many of the "big shot" attorneys will bother with claims where the top limit is $1,000. Instead of concealing the limits the idea is to show the policy to the claims attorney. After he has inspected the policy the attorney for the claimant is frequently willing to accept considerably less than the policy limit if a prompt settlement is made, an attitude far different from that which prevails where there is an opportunity to "go gunning" for $5,000 or more. This new type of coverage may prove to be of real value to the business, and for this reason, I feel that its progress should be watched closely.

I entirely agree with the thought that where you have a deductible form of policy its use should be limited to those who are financially responsible, and, if you will remember, I confined my suggestion of this morning to the well-to-do assured.