ABSTRACT OF THE DISCUSSION OF PAPERS READ AT THE PREVIOUS MEETING

CRITICISMS AND ANSWERS—G. F. MICHELBACHER

VOLUME XVIII, PAGE 260

WRITTEN DISCUSSION

MR. FREDERICK RICHARDSON:

Business men boast of their skill and cunning
But in Philosophy they are like little children:
Bragging to each other of successful depredations
They neglect to consider the ultimate fate of the body.
What should they know of the Master of Dark Truth
Who saw the wide world in a jade cup,
By illumined conception got clear of Heaven and Earth:
On the chariot of Mutation entered the Gate of Immutability?
From the Chinese of Ch'en Tzu-ang (Seventh Century)

I.

Not the least part of my pleasure in reading this paper was derived from its literary quality. Besides, if it is true, as Nietzsche says, that "A good fight will hallow any cause", it cannot be less true that a brilliant rearguard action will make up for the loss of more than one untenable position.

And let me say before passing on, that I for one make no protest against the introduction of poetry into our proceedings, in fact it has my unqualified approval! Nor do I quarrel with the sentiments expressed in Christopher Morley's verses, although it is to be feared they are not as genuinely Chinese as those I have just quoted. Though I may be one of those who sit in the seat of the scorners, and though I do belong to the class of business men who *in philosophy are like little children,* I trust that the author does not merely regard me with toleration. That would be—if I may coin a word—unfellowly! No!

If in the measure of another's heart
I rank so low that I'm but tolerated,
Let the frail links which bind us fly apart!
When I'm not loved let me be roundly hated!

II.

But something too much of this! What concerns us more nearly at the moment is the issue raised as to whether the casualty actuary has given a good account of himself. Yet, whether he has or not, it does seem to me that the cartoon of an actuary drawn by Mr. Michelbacher, really does, after allowing for exaggeration, depict the counterfeit resemblance of what we ought to think he is like and what actually he should be like. And why not? What room is there for drama and emotion in his professional attitude? Why should he not be serenely confident in the integrity of his scientific results provided he knows they are worthy of confident acceptance? If he has demonstrated truth, if he has produced formulas that work, why should he falter though supervising officials are incredulous, though executives rage, agents howl, and the heathen rage furiously together? Rather would we have him be a rock in a thirsty land, rather would we have him mutter like Galileo when making a pretense of recantation, *Eppur si muove!* anyhow it moves. Therefore I find no fault with Mr. Mowbray's statement (*Proceedings*, page 87, Volume XVII).

It is unfortunate that rate making has almost always been carried on in an atmosphere of competition either between classes of carriers or between carrier interests and political interests as a class under pressure of economic interests among the constituents. This has precluded the calm and dispassionate investigation of the statistical technique necessary to a sound solution of the problem.

A fair statement of the case for the actuary, if you ask me! And without shadow of turning.

III.

However, we have asked that rate makers have a heart for the sufferings of others who are bound to abide by their actuarial findings, and that they should not be like the geometrician in Voltaire's *"L'homme aux quarante écus"*.

THE GEOMETRICIAN

I admit that you will perish of hunger, and I, alas, and the State also; but let us hope God will have pity on us.

THE MAN WITH FORTY CROWNS

One passes his life hoping and dies hoping. Adieu Monsieur! You have informed me, but my heart is broken.

THE GEOMETRICIAN

That is often the fruit of science.

It is a belated satisfaction to us to be assured that the entire actuarial body now shares our griefs, and for that—in the *cliché* of the grateful but inelegant orator—I thank you!

More than that, I forgive you.

But it seems that the author of *Criticisms and Answers* would like to incarcerate me and other severe critics in *some institution where our activities could be closely observed.* These are his words, and I presume he means a lunatic asylum. And having so imprisoned us he suggests it would be good fun to demand that we assume the entire burden of rate making; at least it would be good fun if the experiment were not fraught with grave danger to the business. Apparently it is in no danger now.

And all I ask you is, how could he be so cruel? How could he!

The following "howler" appeared in a recent issue of the *Brooklyn Citizen:*

> *"A passageway about* 90 *feet long and eight feet wide, built by the French in the time of Louis XIV, was discovered. Statistics had formed so densely in some places that they blocked the way."*

Now supposing I have been incarcerated and Mr. Michelbacher as the Warden is keeping me under close observation, and, like Scheherazade of the *Arabian Nights,* I have to be a captivating captive or lose my head—what shall I do? Well, I might scatter a nice large pile of stale statistics, and having sprinkled it with a choice selection of mathematical equipment and theories, including a few inappropriate curves and series, furtively set fire to it. Whereupon the Defender of the Faith would rush in to save the Sacred Relics and I should escape in the smoke and the con-

fusion, all the while quietly repeating to myself the wise words of Mr. Mowbray, (*Proceedings*. Volume XVII, page 87).

*But back of the whole problem is the fact recognized by most company actuaries and executives * * * that our series are Lexian and not either Bernoullian or Poisson. With changing forces giving unstable probabilities, rates should be based on trends, not on the exact indication of a fixed period whatever the volume of data.*

I shall desire you of more acquaintance, good Master Mowbray, and if my head is in danger I shall make bold with you!

IV.

There are a few questions I would like to ask those of you who are engaged in the difficult task of rate making.

1. How long ought we to put up with a definite error in the credibility before we may harbor scepticism of the instrument?

2. What mathematical processes would you use if you were an officer of gunnery engaged in determining the gun elevation and charge required to hit a receding target?

3. What steps would you take to measure the effect of new elements on the *quæsita* of compensation rates?

4. Do you think you could apply a law of error which would enable you to get reasonably close to a *quæsitum* for each type and class of risk, and for individual risks separately, as postulated by Mr. Michelbacher?

5. Is it possible to establish complete uniformity by scientific segregation of the units, or must we, on account of practical difficulties, call things by the same name or tally them with the same number, although they are actually disparate? In other words, is compensation rate making ever likely to be anything more than a half science?

6. As the elements have so far been broadly generalized, and will probably continue to be, what is the logical objection to *a posteriori* reasoning to correct a dangerous error in the probability if the strict *a priori* method affords us no remedy?

7. When everything else has been done, is it possible to measure the elements of competition and selection so that we may avoid further failure to approximate the *quæsita*, with consequent and continuous loading of the rates to no settled purpose?

8. Is it better that many assured should each make a small gain in underpayment of premium, whilst a few insurers suffer a great loss, or better that the few gain and the many lose, if their loss prove to be ultimate gain in the strengthening of the insurance structure?

9. Supposing you had been called upon to make universal rates for risks large and small as the actuaries of carriers engaged solely in the compensation business, how would you have met the problem of inadequacy which has existed for the past ten years, and if you had not met it, what would have been the result, and would you still be in possession of your jobs?

I ask these questions as a lay brother seeking enlightenment. Perhaps some of you will answer them.

V.

The favorite answer to my criticism has been to say that I propose to employ mere guesswork to overcome the error in the general credibility instead of exact mathematical rules. But call it guessing, or playing a hunch, or judgment, or common sense or what you will, we have at last been forced to make empirical changes in a hopeless effort to escape from the painful impasse where we now find ourselves through a too slavish adherence to methods which were good in themselves, but not quite good enough. All I have ever requested was the use of a judgment factor based upon careful observations. It might not have been necessary if our technique had been adequate, and that it conceivably could have been adequate is suggested by Mr. Mowbray, unless Herr Lexis leaves us sadly up in the air, just as Monsieur Bernoulli and Monsieur Poisson have done, in which case we had better wish him also a fond *Auf Wiedersehen,* and go about our business.

Now supposing the trends had gone as markedly the other way, would such a correction as I have advocated have been renounced and denounced on the theory that it was unscientific, and lest the pendulum swing past the center of its arc and the carriers make a loss? Pardon me if I smile at the possibility! It is all very well to present you with a caricature of a so-called practical man endeavoring to make up a set of rates out of his head, but if some are fooled by that kind of extenuation I hope

it does not blind *you*. It is an old game to set up a dummy tricked out to look remotely like some protagonist and then set fire to it accompanied by the cheers of the assembled schoolboys. I say this in the process of argument and with the keenest enjoyment of the attempt to get away with it.

What I ask is, does guessing only cease to be guessing when it persists in relying upon a method which as persistently refuses to provide the solution? As far back as 1924 it would not have taken a genius to determine the required level of rates at that time with the experience of 1921, 1922 and 1923 before him.

VI.

At this point it is necessary for me to refer to one of those mathematical conundrums of infinity shrewdly suggested by Mr. Senior in a correspondence on the subject. After traversing the usual ground relating to the property of judgment in its relation to exact science, he says:

*Let us assume for the moment that the divine gift of judgment and foresight has been granted to one in our chosen profession and that our formula has been enriched by a factor of perfect judgment resulting in an adequate system of rates—a system that includes a complete provision for future development * * *, the next question that arises is this: How shall we maintain this new and perfect system of rates? We may anticipate that the companies will adhere to this new system to a reasonable extent in the so-called regulated states, but what about the large area which is free from all legal restraint? Will the gentleman's agreement suffice to maintain observance among the bureau companies, and will the companies within or without the bureau possess sufficient moral stamina to withstand the pressure of economic competition? * * * Unless we can obtain reasonably complete adherence to the new formula so laboriously evolved * * * we shall have failed and at what price? Of what use is our formula unless put to good use? We might be even in a worse position than with our original imperfect formula. We might even be drawn into that vicious circle where competition, finding its lowest level, keeps on demanding higher and still higher judgment rates of a nominal value.*

Here you see old Sisyphus again rolling his ponderable stone up the mountain,

With useless endeavor,
Forever, forever.

It is a weighty statement and I intend to deal with it as such. So in the first place I hazard the opinion that the essential problems of rate making are no different in this country from what they are in any other, the only difference being in the method of approach. In Great Britain, where there is plenty of competition, the thing that Mr. Senior fears does not happen. Why? Because a comparatively small discount on selected risks is sufficient to satisfy the competitive and predatory interests of the ungodly, and the profits of the business are jealously conserved by the redeemed and the unregenerate alike. The British are a seagoing people and they know that if you load a boat to the gunwale it becomes dangerous to navigate, and will be constantly shipping water, which, if not baled out, will cause it to sink. However, if you give it a fair amount of freeboard it will ride through a gale. That's the difference of approach.

However, this is America and we must state the argument in native terms. So I express the right to suppose that the present inadequacy in regulated states is not due to competition between carriers. Further, I am entitled to believe that, although in unregulated states the inadequacy may be increased by competition, there has been failure to provide an adequate scale of rates in any event. The measure of the inadequacy in either regulated or non-regulated states may largely be determined by the experience of the group of carriers having the lowest loss ratios. This is complicated, of course, by the factor of selection, but we must assume that the carriers are out to make as much or to lose as little money as possible, so that the degree of observance is to be determined by the experience of this group or we have no standard at all. Therefore, when we find a substantial group not losing any longer but making a fair profit, we are in a position to determine whether the trend factor is still required to give an equitable result.

Of course, we are dealing with a mixed problem and that is why I have asked the following question: When everything else has been done, is it possible to measure the elements of competi-

tion and selection in order to avoid further failure to approximate the *quæsita,* with consequent and continuous loading of the rates to no settled purpose?

I am sure that we can measure, for all practical purposes, the element of pure competition—or impure competition, if that is what you prefer to call it. It has been done elsewhere and it can be done here. But I am not so sure that we can find a measure for the elements of selection and selective competition. There is a subjective quantity in the problem, and although mathematical science takes more and more daring flights, it has some distance to go before it can measure heterogeneous qualities and attributes along with the more concrete units under consideration. These things may be separable, and it is probably along these lines that Mr. Michelbacher is thinking when he says: *More and more the demand is for correct rates, not in the aggregate, or for broad classifications, but specifically for individual risks.* Nevertheless, I am convinced that broader classifications are necessary to secure stable averages, although I am not opposed to the separation of disparate units provided that after analysis there is synthesis. When all is said and done, we cannot hope to settle every problem at once and some of them we may never solve. The important thing is not to withhold relief because we have failed to find a specific.

Mr. Michelbacher speaks of the actuarial science of life insurance as though it were an almost perfect instrument. True it is much less imperfect than the *quasi* science of compensation rate making, but it might soon find itself in the position we are in if it had to provide a change of rates every year on the basis of strict *a priori* experience for the purpose of satisfying supervising officials. Something may be said of a system which permits each company to have its own table of rates, and to collect more than it generally needs, retaining a part and returning a part of the overplus. This provides against the dark days of war and pestilence, of financial panic and shrunken values. Unfortunately, we are not in that position. It is obvious that malingering, suicide, selection for and against the company and the feature of indeterminability in disability contracts are subjective elements which affect the problems of life insurance, as some of them, and others not enumerated, affect us. The life companies

have by no means succeeded in measuring all of them and, therefore, are to some extent in the same boat. But the difference between them and us is that they work within a margin of safety, whereas we work within a margin of loss. In which, I may venture to say, lies the difference between heaven and hell; those life companies which furnish net cost contracts being located at present somewhere between the two places.

VII.

My injunction not to treat supervising officials *like children to be circumvented instead of seriously minded adults to whom the problem and its solution should be demonstrated* was made in reference to the fiction that present increases in the rates are due to an emergency and not to a definite breakdown of the rate-making structure. I am not aware that the life companies raised their rates to meet the emergency of the influenza epidemic, and in my opinion emergency should play no part in a proper system of rate making. The emergency passes, and what then? Your rates may be too high when the storm has gone or they may be just about right. Are you going to relinquish the emergency increases in either event? The ability to meet unexpected crises and catastrophes is the property of the surplus funds, and it is only because our method has failed to meet normal costs and has ignored the element of surplus profit that we now find ourselves without provision against the rainy day, doomed to call upon the reserves required for our other lines of business and for security depreciation, and to face the dire task of convincing the authorities that we are neither knaves nor fools. Of course, the supervising officials and other interested parties must always put up the other side of the case, but what have we done to convince them of the error of their ways? Next to nothing! How could we convince them when we had no settled convictions ourselves and no comprehensive plan? We fell prostrate for the theory that there should be no loading for profit reserve on the firing of the first shot, and we have acted, all of us, like the merest tyros. No wonder I described this latest proceeding as being fatuous. The institution of insurance owes it to the public to make its gains when its constituents as a whole are making gains, and its losses when they are making losses. Any other assump-

tion goes contrary to the broad principle of insurance, to orderly thinking and sound public policy. That we should have to ask for large increases now is nothing short of a calamity, although, Heaven knows, we need them. The right time to repair leaks is when you find them and not when a fierce gale is blowing and the ship is in danger of foundering. The responsible officials and executives were aware of serious inadequacy early in 1924, but most of us were lulled to sleep by a siren voice saying: "Just wait a little and the sacred formula will take care of everything". Was there ever such invulnerable optimism, such doctrinal pride, such a superlative degree of scientific integrity?

The only alternative to my position is to say that we were faced with an impossible task from the start and did not know it. If that is so we might as well fold our tents and admit we are licked. Why go on? Let us approach the supervisory officials and say: "The conditions you have laid upon us make it impossible for us to provide the required service and so we relinquish the task. There are limits to human endurance and we cannot perform miracles. You are unjust and unwise task-masters." And I for one should be interested to hear their reply, that is if they deigned to make one.

My own view is that if we had been right-minded ourselves, and if an authoritative group of actuaries and executives had stood out for reasonable conditions we could have had them after going through the preliminary skirmishes.

VIII.

This brings me in conclusion to what I conceive to be the principal aim and function of the Society. There are no men with whom I am more proud to be associated than its members. I really do believe in your scientific integrity and in your absolute sincerity of purpose. In a wicked world I have never doubted it. Moreover, I find in our proceedings an intellectual fiber not common to all of our insurance gatherings and a unique body of literature that is most vital and stimulating. You have done and are doing notable work, and although I have vigorously criticized methods which some of you have as vigorously defended, the furthest thing from my mind has been to slight a group to which I am fortunate enough to belong, and for which I have a sincere

admiration. There are no bad feelings, and if now and then my far from *ex cathedra* statements sound harsh and unpleasing, you may just call it *pretty Fanny's way* and leave me so.

I recognize the incompatibilities of rival carriers, the bias of political consideration, the whims and the discordances, the alarums and excursions in the struggle for advantage, and know how these have befogged problems and solutions and increased the difficulty of your tasks. But these things need not discourage you. You must meet them philosophically and in a new spirit; not one of protest and extenuation, but by assumption of authority and responsibility. This body should seek through its Council to secure official recognition for itself by making responsible decisions and pronouncements on subjects of vital importance within its province. It should be prepared to undertake the arbitration and settlement of difficult questions in a broad scientific and practical spirit, regardless of partial interests and short views. It should emerge from its modest retreat and begin to play confidently its inevitable part in the world as a qualified, conservative and indispensable group which has benefits to offer and professional purposes to be served. In some such manner might we advance more boldly to the solution of our problems and, growing in strength, at last be able to take in our stride obstacles which now seem almost insurmountable. Then, and not till then, will men say: *These are they who know the Master of Dark Truth who on the Chariot of Mutation entered the Gate of Immutability.*

MR. GEORGE F. HAYDON:

Judging from the quotation with which Mr. Michelbacher prefaces his paper I have gained the impression he fears he might be charged with treason to his associates and to the traditional practice as established during the last decade in the establishment of workmen's compensation insurance rates. If he is possessed of such fears, I am confident they are unfounded. Insofar as my own convictions are concerned, I am absolutely at one with him, and I suspect I am not the only one. In fact, I rather suspect most of us feel the same way about it. But it is apparent Mr. Michelbacher has the greater courage, if the fact that he has committed his conclusions to paper be any criterion. And be-

cause I agree with Mr. Michelbacher, naturally, this consignment becomes most difficult, if I am supposed to confine myself to constructive criticism whereas my inclination is to applaud.

Mr. Michelbacher may consciously or unconsciously have believed he was scaling the heights of iconoclasm. But he has only to look around and he will find he is just merely a little in advance of the regular procession. Mr. Michelbacher emphasizes, in a way, that the principles underlying the making of workmen's compensation insurance rates have not met expectations, and have not been productive of satisfactory results. And our critics ask us how it could be otherwise when we are committed to a plan that unbalances and swings hither and yon; that is constantly at the mercy of the vagaries of a flexible wage level; that pays but scant notice to practical considerations; that depends in part upon factors picked out of the ether; that is so complicated as to virtually defy any attempt to satisfactorily explain its ramifications to policyholders; that penalizes an employer for engaging high-grade help and paying good wages; that has failed miserably in its attempt to anticipate events, and wherein rules are changed as frequently as women's fashions. In all, our critics charge we have developed an inefficient, unresponsive plan which has not been improved by having grafted onto itself an experience rating plan relating current rates to an experience period, the center point of which is four years prior to the mid-point of the policy period, the latest year being totally disregarded.

After many years of seeming complacency, our critics, largely drawn from the great body of executives and underwriters, apparently have concluded the idol of actuarial science, insofar as workmen's compensation insurance is concerned, possesses that form of pottery underpinning made famous by history. The underwriter's position has not been an enviable one. He has had to take up the shock of unfavorable loss ratios. He has been torn between the dictates of his common sense and his fear of what he is now somewhat inclined to consider an actuarial monstrosity. It has been suggested to me that the relation between the underwriter and his actuarial confreres bears similarity to that which existed between the magician and an unlearned and wholly superstitious people during medieval times, when the

necromancers with their potions, their philters, their crucibles and their wands, would dispense their wares for the general edification, wonderment and astonishment of all who possessed the price. The poor deluded people admitted their impotency to understand it all; they merely accepted it, although their common sense rebelled. And finally common sense prevailed—much to the discomfort of the very able gentlemen who were popularly supposed to be in league with his satanic majesty.

I am not prepared to believe the parallel goes the entire distance. I do not believe underwriters are actually sold on the belief that actuaries really have a working agreement with his satanic majesty or even with his chief competitor, Mephistopheles —at least not beyond a certain point. My observations do lead me to believe, however, that, for some time past, the bulk of the body of underwriters have believed and felt that the actuaries were on the wrong track, and that their plans and predictions were destined to prove a losing venture; however, they hesitated to protest too vigorously, and why?—merely because they feared their own impotency to cope with what seemed to them to be the necromancy and magic of the actuarial cult. And now it would appear the veil has been torn asunder; the imperfections of the rating plans stand forth in all their nakedness; the losses have been on the verge of the cataclysmic, and the whole structure of workmen's compensation rate making science is on trial.

"Today" is in the possession of those who have consistently attacked the rating plan. And we may no longer hide behind the claim that the science of workmen's compensation rate making is still in its infancy and that we are yet in the pioneering stage. But we may in all conscience claim the extenuating circumstances so ably presented by Mr. Michelbacher, particularly as respects the hopelessness of ever expecting conditions to stay "put" combined with the ever increasing demand for more individually correct rates which naturally would be detrimental to the theory of broad classifications and to the theory of a smooth rating curve rather than one of sharp fluctuations. These facts, though they may not balance the imperfections and meet all the criticisms, most certainly do constitute a defense of no mean proportions and merit, and exercise a decided ameliorating influence.

In conclusion, and as a brighter note in an otherwise somewhat hopeless atmosphere of doubt and defeatism, as Mr. Michelbacher infers, merely because the present rating structure is on trial and is under fire does not necessarily portend its abolishment; neither does it prejudice the dignity nor standing of its framers, and, after all, it is not the only line suffering from a temporary setback. However, it would be idle to pretend that the whole scheme is not due for a drastic overhauling or that courageous measures are unnecessary if we are to hope that confidence in the science of making workmen's compensation insurance rates will eventually be restored.

I have nothing but praise and admiration for Mr. Michelbacher's paper. He has struck a chord which must reverberate throughout the entire insurance business. It is to be sincerely hoped that his efforts will not prove abortive.

MR. B. D. FLYNN:

It seems a pity to attempt to add a word to Mr. Michelbacher's comprehensive, well-pointed and, I may say, artistic contribution. He knows his subject well and has handled it in his usual capable and thorough manner. It may be that a few remarks may be added with propriety, however, along the same general line of thought—although, I am afraid, not in the same entertaining vein.

Mr. Michelbacher compares the accomplishments of casualty actuaries in their comparatively short term of service as rate makers with those of actuaries who have for many years been studying and solving the problems of life insurance. Life insurance, because of the long-term character of its contracts, which necessarily introduces the element of interest, the uneven distribution of expense during the term of its policies, the diversified forms of benefits, the variation of cost by ages, and for various other reasons, undoubtedly presents a much more complex problem in its rate making than casualty insurance. But, on the other hand, although casualty insurance is generally written in short term contracts with a definite single set of benefits and with a level annual distribution of expense, its rate making work is hampered with so many limitations and restrictions, so many practical difficulties, which are either inherent in the nature of

the contingency to be rated or which have grown up in the administration of the business, that the problem presented is one which would tax the breadth of understanding and knowledge of any actuary. In my own opinion, considering the many difficulties encountered, the record of the casualty actuary as a rate maker, so far as he has been allowed to assume responsibility, has been one of remarkably fine progress—one which does not compare unfavorably with that of the life actuary when consideration is given to the tools with which he has been obliged to work and the number of years in which he has been engaged with the task.

Let us consider in a broader way the criticism which happens to have been directed to the rate making work of the casualty actuary. We all know that there have been heavy losses in the casualty business of stock companies—particularly in the major lines. If we couple the rate making underwriter with the actuary as joint culprits in the case, I believe we can study the situation in a clearer way and possibly point our finger at some of the weaknesses of their work and perhaps find some ground for criticism—or at least point to possible improvement of methods.

Let us look over the rate making of one line only, workmen's compensation—a line in which the casualty actuary has probably had his greatest opportunity and which has produced most unsatisfactory results. You will recall that a few years ago the National Council demonstrated for the period including policy years 1926, 1927 and 1928, that if manual rates had been collected for all business of the country a sufficient volume of premiums would have been obtained to meet all losses and cover the provision for expenses in the rates. It would appear, therefore, that the manual rate making work of that period when checked in total produced satisfactory results. During the years covered by the report, however, excess losses equal to approximately 6 per cent. of premium income were shown for all stock insurance carriers combined. We should go further, therefore, to learn why with adequate manual rates practically every company suffered large losses under this business.

Workmen's compensation manual rates differentiate solely by industrial classification but risks vary greatly within the industrial classification both as to their expense producing and loss producing character. It is well known that because of the mate-

rial "per policy" expense total management expense is much greater than the provision in manual rates for that large group of policies in the small risk class whereas it is much lower than the provision for the large risks. Further, studies have shown that the loss costs of the small risks are in general greater than those of larger risks within the classification. If one company were to write the bulk of its business in the small risk class, therefore, it could expect to find manual rates entirely inadequate, whereas if that company were to write mainly the larger risks it would find both the expense provision and the loss provision redundant.

To attempt to remedy this clear weakness of manual rates and to fit more closely the wide range of risks within the industrial classifications, various rating devices have been set up. In an effort to make the rate adequate for the smaller risks the device of an expense constant has been used in recent years to a certain extent to make allowance for the larger per policy expense of the small risks, and similarly, a loss constant has been added in certain states in order to provide for the poorer experience of risks in that class. Another device has been schedule rating, a scheme which fixes prospectively charges and credits for certain physical qualities of the risk. To a limited extent also, under this plan of rating, allowance is made for the existence in the plant of a safety organization which it is presumed will improve the character of the risk. Then there is experience rating applied to the larger risks which it is presumed may be able to indicate their character upon the basis of their loss experience over a period of time, say, the most recent four or five years. This plan not only modifies the loss charge in the rate but for some unaccountable reason it modifies the expense provision also upon the basis of the risk's loss experience. Then there are risks, generally in the larger sizes, which have characteristics that are not properly measured by the set rule of the rating plans and must be treated individually. These are handled under equity rating.

The question immediately arises—why with manual rates adequate over all the companies suffered losses approximately 10 per cent. greater than the provision in the rates. The answer in my opinion lies in the failure of these rating devices to overcome the inherent weakness of manual rates which differentiate only

by industrial classification. As the main differential within the industrial classification is size of risk, why not have more than one manual rate for each industrial classification and do away with some of these rating devices which because of inadequacy or structural weaknesses have failed to meet the situation. A start has been made along this line by Pennsylvania in excluding the large risk class from the experience upon which the manual rate is based, thus recognizing, to a certain extent, the necessity for a differential by size of risk within the industrial classification. Why should we not go further, however, and establish, let us say, three manual rates by size groups within the industrial classification which would recognize the necessary variance in both expense and loss provision?

There would be objections raised I realize against such a plan. It might be stated that the risk near the upper border of the small sized group might pay much more than the one slightly larger in the next sized group. If this were thought important the plan might be modified by charging the risk in the second sized group the maximum premium of the first group plus the balance of payroll at the rate for the second sized group—and so on. A practical solution of this difficulty can I believe be worked out. It might be stated that the fitting of manual rates to the risk would be more complicated than at present. On the other hand, however, some of the present rating devices which are complicated and expensive to apply could be eliminated. As to the question of unfair discrimination I agree with others that there would be none; that the plan would follow approved business practices in other lines such as the making of public utility charges.

We all know, however, that a closer fitting of manual rates to the range of risks to be rated and the elimination of various ineffective rating devices will not clear our present rate troubles in workmen's compensation. Various new factors have entered the cost of this line in recent years to such an extent that if a test were applied today manual rates undoubtedly would show a material inadequacy over all. This situation is due mainly to the increasing cost factors which have not as yet been given full weight. The effect upon loss cost of reduction in wages, the introduction of new claim sources, such as, industrial disease, the

increasing liberality of claim administrative bodies, the increasing cost of medical attention, and finally, but not least, the increasing expense of handling a slightly reduced number of risks with a greatly reduced volume of premium income—which by the way really necessitates an increase in expense provision during these years—should all be taken care of so far as possible by the rate maker. The plan of projecting loss costs according to the trend of recent experience has been to some extent accepted by rate supervising authorities, but much more complete recognition of the necessity for such factors should be given; or else, a reasonable arbitrary factor to cover future contingencies should be approved.

The ideas above expressed are those of only one person—and are put forward with due humility. Still we all know the critical situation in workmen's compensation today and no thoughts which may lead in the direction of a solution should be left unexpressed. We all are aware, also, of the great difficulty of obtaining sympathetic cooperation from supervising authorities in these hard times when there is great opposition to increasing the burden of employer-constituents. The main hope at present appears to be in the evolution of a sound and more practical structure of manual rates and rating plans coupled with such increases in rate level as can be obtained. If actuaries and underwriters will do their utmost along this line certainly there can be no basis for justifiable criticism in the future of workmen's compensation rate making.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. GUSTAV F. MICHELBACHER:

Mr. Richardson again demonstrates his remarkable ability as a master of argument. After reading only a few of his sparkling paragraphs an involuntary "ouch" escaped me. Before I reached his concluding remarks, I felt myself overwhelmed by an avalanche of rhetoric. By every rule of the game I should be thoroughly squelched; but I'm not! The fact is I am greatly encouraged because, if I correctly interpret Mr. Richardson's latest contribution to our joint debate, we are not so very far apart after all. This may be because I have modified my ideas with the passage of time.

I repeat my program of rate making principles for casualty insurance:

First, we cannot escape the tremendous body of statistical experience we have developed in this country. The indications of this experience must necessarily provide the foundation for future rates.

Second, we should avoid any effort to project this experience into the future by seeking to predict the probable course of obvious trends. Trends are deceptive in a business so susceptible to sudden and overwhelming changes as ours. Furthermore, in procuring approval of rates from state officials, it has been demonstrated that opportunities to exercise judgment, such as these predictions would create, may provide an excuse to inject considerations of expediency into the determination of rates, thus distorting the final results.

Third, we should strive to include in the rates a liberal factor of safety as a buffer against adverse developments affecting the cost of insurance. This may mean that rates will be too high at times; if so, the excess of premiums over the requirements for losses, expenses and a reasonable margin of profit should go to provide a reserve against the day when rates will be inadequate. In other words, the legal criteria of adequacy and reasonableness should be applied, long-range, to the results of a period rather than to the results of a particular year.

Finally, the rating system should be designed to afford a high degree of adaptability to the conditions of individual risks so that both loss and expense requirements of risks of all sizes and descriptions may be properly measured. In short, rates should be thoroughly equitable for individual risks.

I doubt whether Mr. Richardson would advocate any decided revision of these fundamentals. I might apply them one way, he another; but such differences I should encourage in this difficult period of experimentation when a practical solution of our problem that is at once simple and satisfactory seems just as far from realization as ever.

With Messrs. Haydon and Flynn I agree that our present rating plans are far from perfect. But then who can claim perfection for anything in this topsy-turvy world of ours? Defects are apparent in every phase of human endeavor. The best minds of our time are concentrating upon the problem of devising a structure which will withstand the pressure of changes of great scope and effectiveness. Our hope is that adjustments to the existing system will be found which will insure this result.

Beside the problems in the broad field of economics our problem of rate making fades practically to insignificance. We should not, therefore, be awed by it, nor should we regard it as insoluble. It can be solved and it will be solved if each of us will maintain an open mind, will exercise his thinking apparatus to its full capacity and will cooperate with others whose interest in producing a proper rating system is identical with ours.

Mr. Flynn shows the proper spirit by suggesting a new idea. Let us all do likewise; the more ideas we can throw into the laboratory the richer will be the material for experiment and the better will be the ultimate solution of the problem.

And, as a parting shot, I say this: when the solution is found, it will be discovered that casualty actuaries have blazed the way for its discovery.

THE ATTITUDE OF THE COURTS IN CONSTRUING THE WORKMEN'S COMPENSATION ACT—CLARENCE W. HOBBS

VOLUME XVIII, PAGE 269

WRITTEN DISCUSSION

MR. F. ROBERTSON JONES:

This paper contains (pages 281-381) a most valuable compilation of the decisions and principles followed by the courts in construing those provisions of the compensation laws which define the persons and employments covered. This matter is so clear, accurate and adequate, with a single exception, that I can find nothing therein to comment upon. The single exception is the matter (pages 352-355) under the heading "Employments within the Jurisdiction of Another State". This was too big and complex a subject to be dealt with adequately in a space that would fit in with the rest of Mr. Hobbs' paper.

But the extra-territorial application of the various state compensation laws, and the conflict of laws and duplication and confusion of remedies resulting therefrom, is a highly important subject and a cause of much uncertainty, waste and abuse. To a layman it looks as if the courts have been wabbling back and forth on this subject, pulling and hauling in various directions and poaching on one another's preserves, without due regard for comity or for the possibilities of valid constructions that would avoid rather than create interstate confusion. It is to be hoped that Mr. Hobbs will undertake a more intensive study of this particular subject and later favor us with an analysis of the decisions thereon, framed to give us insurance people a fairly definite picture of "where we are at" and some hints as to the possibilities and means of getting out of the mess.

Preceding (pages 269-281) and following (pages 382-384) the matter just commented upon, Mr. Hobbs presents some observations on the attitude of the courts in construing the provisions of the workmen's compensation laws in general. On this broader phase of the subject Mr. Hobbs concludes that while the courts construe the compensation laws "liberally", they are not (with an exception as to questions of constitutionality) construing them with "increasing" liberality (see pages 271, 384)—that the continually increasing liberality in the provisions of the compensation laws and in their application, which causes us so much uncertainty and trouble, is the work of the legislators and of the compensation commissions rather than of the courts.

With that conclusion, to some extent, I agree. If it were not for the courts many of the administrative commissions would be continually stretching the law illimitably in the way of vote-buying generosity in distribution of the insurance funds. And some of our worst troubles are due to acts of the legislators in depriving the courts of jurisdiction to interfere with awards based upon false presumptions and findings of fact contrary to the manifest weight of evidence. Nevertheless, I feel that the courts have a large part in the responsibility for the mad career of progressively increasing liberality in the distribution of largesses that now characterizes the administration of workmen's compensation in many states. In the beginning they let many unprincipled constructions and practices get by until it was too

late to put matters right. And whenever a new question arises, they still are prone to step off with the wrong foot and later only try to dam(n) the consequences of their own "breaks".

Much trouble, in my opinion, originated from the fact that our courts (with some notable exceptions) started off with the idea that the workmen's compensation law was an abandonment of all that is meant by "due process of law"—that it was a departure from all principles of justice and jurisprudence—that it was purely class legislation, intended as a sort of public relief or "social justice" for the benefit of a needy class, to be construed and applied, liberally and charitably, with a view solely to the interests of that class. There is no doubt but that such a doctrine prevailed with some of the framers of our compensation laws, or that it is now professed by many of the politicians who administer compensation.

But the majority of our compensation laws were distinctly based upon European precedents; and a study of the literature of the time of their origin will show clearly that the European compensation laws were based upon the doctrine of "trade risk". That is a juridical doctrine—a substitute for the old doctrine of employers' liability for fault only. Roughly, the doctrine of trade risk is that, in justice, industry owes to its employees and their dependents some compensation for the wage losses caused by risks to which they are subjected because of their employment, regardless of negligence. Though variously expressed, qualified or limited, I think that this doctrine stands out clearly as the basic intent of the legislators in the large majority of our compensation laws. But many of the courts have overlooked no pretext to ignore it.

To illustrate: The original Michigan compensation act, taken as a whole, clearly indicated a legislative intent that compensation should be based upon and amount to a proportion of the wage loss; yet, because the phraseology of one particular paragraph failed to express that idea unambiguously, the Michigan courts construed it, regardless of the context, to mean what manifestly the legislature never intended, namely, that where a permanent injury prevented a workman from resuming his old job but did not prevent his earning higher wages in another occupation, he was entitled to compensation for permanent *total* dis-

ability; Foley v. Detroit Railways, 157 N. W. 45; Seitz v. Labadie Co., 201 N. W. 485.

Similarly, the New York compensation act manifests an intention that compensation shall be for "loss"—though in fatal cases it provides for pensions which may far exceed all possible loss. Yet, because the provisions of the act relative to pensions for widows contains no express limitation to the contrary, the courts have construed the act to mean that a young woman who marries a fatally injured workman on his deathbed is entitled to a life pension as "compensation"; Nickerson v. Risley, 231 N. Y. App. Div. 744, Industrial Bulletin, Nov., 1930.

Another misconstruction of the compensation law, gross in its consequences, started in England, but has been blindly followed by nearly all our courts. The English compensation law then covered only "injuries by accident arising out of the employment". That phrase, at the time of the law's enactment, was carefully considered and was generally accepted to mean injuries *caused by* accidents and by accidents arising out of risks of the employment; but the House of Lords construed it to mean that where a workman, suffering from acute heart disease, fell dead as a consequence of the mere motion of lifting a spanner for the purpose of moving a nut, the injury was compensable; Clover, Clayton & Co. v. Hughes, 3 B. W. C. C. 275.

That construction extended the compensation law indefinitely into the field of pure health insurance. It eliminated the statutory requirements, as generally understood, of an "industrial accident" and that the injury must "arise out of the employment", and, instead, substituted a judge-made rule that it suffices if a pre-existing injury (*e.g.*, a disease) is brought to a culmination by some ordinary act or happening in the course of employment. Whatever may be said for the reasoning of the English courts —and ours—in support of it, this construction certainly manifests a spirit of liberality carried to an extreme, with complete disregard of legislative intent.

Turning to another phase of the law: It is within the memory of many of us that when the workmen's compensation laws were first proposed, great things were to be accomplished by requiring prompt notice of every accident or injury, down to the merest trifle. Employers were to have opportunity promptly to investi-

gate the facts, thereby eliminating many of the frauds and uncertainties of belated claims under the old liability laws, and to apply prompt first-aid and medical attention, so as to eliminate many then common aggravations and infections of injuries. Provisions intended, and generally appropriate, to effect such results and to develop among the workers a habit of prompt reporting of all injuries, were incorporated by the legislators in nearly all our original compensation laws.

Since then, however, some legislators and many of the commissions have been emasculating or nullifying such provisions, and the courts, quite commonly, have gone out of their way to construe the law to help the bad work along. For illustrations: The compensation acts of New York and Connecticut require prompt notice of injury. The manifest purposes of this provision call for notice of the *happening* of the injury. But the New York and Connecticut courts have seized upon the fact that the word "accident" is not used, to construe this provision to mean that no notice is required until after the "injury" has become serious—that is, until after the harm from neglect has been done or until it may be too late to ascertain the facts relative to the cause of the injury—thereby inviting and propagating the very evils the legislators clearly intended to prevent.

Moreover, I think that the courts have unquestionably gone far beyond the clearly expressed intent of the statute in construing the phrase "in the course of the employment". Consider the following case: A salesman employed with his automobile to canvass some country towns, spent the evening after his day's work in a social gathering at a country store. There was some evidence that business was once mentioned; but the meeting was almost entirely social, if not convivial. Leaving late in the night, the salesman made for home, but in trying to garage his car drove it over an embankment and was killed. Held that the accident occurred "in the course of the employment"; Crowell v. American Fruit Growers, 253 N. Y. 543, N. Y. Industrial Bulletin, March, 1930.

And consider this case: A traveling saleswoman in Boston was ordered to return to her employer's home office in New York City. The use of an automobile for travel was not contemplated by the employment, but the woman chose to make the journey in her

own car and, instead of proceeding directly, to go around by Syracuse, where her mother lived. While on the road between Syracuse and New York City she was injured in an automobile accident. Held that the accident arose out of and in the course of the employment; Fronce v. Prosperity, 255 N. Y. 613.

The effect of such decisions as these is to hold employers liable to compensate for losses resulting from multitudes of risks incurred by employees for their own purposes, regardless of the employer's interests, and, consequently, well beyond the intended coverage of the compensation laws.

I might extend this list of what I believe to be judicial misconstructions a little further; but I think I have gone far enough for my purpose, which is to show that the courts, although they, as Mr. Hobbs contends, have not construed the compensation laws with *increasing* liberality, yet have continually opened channels for increasingly liberal applications of such laws by excessively liberal constructions whenever new questions of construction have arisen.

It may seem presumptuous for a layman thus to criticize the judicial construction of statutes. But the situation is this: When those statutes were framed and enacted their intended purposes were generally quite well known to laymen who, like myself, kept in close touch with legislation on the subject. Now we find those intentions being progressively more and more exceeded, by authority of the courts. Whether the courts are right or wrong in their liberal tendencies is a question for the legal profession. But from the standpoint of a layman it is incontrovertible that the courts have been the originators of much of the progressive liberality in the application of the workmen's compensation laws, of which we, rightly or wrongly, complain.

MR. LEON S. SENIOR:

As originally planned by the Committee on Program, this paper was to establish in a positive way the prevailing belief that the courts have shown an increasing liberal trend in making decisions on questions affecting workmen's compensation. The author rejected the idea of writing a paper under a title which *a priori* accepted a situation that required to be developed by definite and unmistakable proof. Apparently he decided to give to his

paper a rather colorless title after reviewing a large number of decisions which convinced him that opportunism, unanchored to principle, was not a factor guiding the courts in cases presented on appeal from decisions of Industrial Commissions. But right at the outset he was confronted with the problem of defining "judicial conservatism" as contrasted with "judicial liberalism".

It is well known, of course, that the courts are consciously or subconsciously influenced by social movements reflecting the spirit of the times and that a given opinion reflects the social environment and political education of the particular judge. The author explains that statutory law, from the standpoint of interpretation, may be divisible in two classes: (1) statutes prescribing penalties or which are in derogation of common rights, and (2) statutes which are remedial in character or enacted in the interest of public welfare. The first are construed in a strict manner, while the second are subject to interpretation in what may be described as a liberal or equitable manner.

Workmen's compensation laws come within the second class and for that reason it is safe to assume that the courts, under these general principles of statutory construction, would apply liberal interpretations, resolving doubts in favor of the employee for whose benefit the law was enacted. Questions relating to evidence, to notice, and to time limits for appeals are resolved in a spirit free from any technicality, giving the widest latitude to the claimant in his effort to make out a case.

Mr. Hobbs' paper gives to the student a very clear understanding of the principles that underlie statutory construction and of the methods that are used by the courts in the process of interpretation. The author is especially at home in the discussion of certain important phases of the compensation laws of this country. For example, the review of cases relating to independent contractors is splendid and nowhere can one find a better statement of the doctrine which led to the assumption of jurisdiction by the Federal courts in the case of accidents sustained on water by workers engaged in maritime contracts.

On the other hand, the author has not fully developed the trend of decisions on certain important questions, *i.e.*, the extension of jurisdiction in extraterritorial cases, the length to which the courts will go in accepting as final the decisions of Industrial

Commissions on questions of fact, or the line of demarcation as between injuries due to accident and injuries due to disease, particularly where the claim arises on proof of casual relation between disease and accident. The author might have given greater effort to ferret out special instances of liberalism v. conservatism.

For example, in his discussion of extraterritoriality he makes no mention of such an important case as Cameron v. Ellis Construction Company, 252 N. Y. 394, a case that reflects very definite conservative leanings as compared with the earlier decision in Post v. Burger, 216 N. Y. 544. Some of the best tests on liberalism v. conservatism could be made in the field covered by the phrase "arising out of and in the course of employment". This the author wholly overlooks. Injuries due to extraneous risks come under this category. Here he could have found a contrast between the conservative decision in Lebeda v. Pongracz, 230 App. Div. 606, and the liberal decision in Garnes v. Feeney et al, Vol. 16, No. 10, W. C. Reports. In each case the employee was killed by a stray bullet from an unknown source. In the Lebeda case the award was dismissed, while in the Garnes case the award was affirmed.

The effect of discontinuance in third party actions opens a field for debate on liberalism v. conservatism. For illustration we may refer to the case of Breital v. Hinderstein Bros., 258 N. Y. S. 237. Here the claimant sought to recover against a third party, discontinued the suit and three years after the accident prosecuted a claim for deficiency under the Compensation Law. The Industrial Accident Board granted an award for deficiency. The Appellate Division reversed the award and dismissed the claim and in so doing it expressed the view that "any act whereby the election to sue is not carried to judgment on the merits in order to fix the deficiency is preventive of any award for deficiency unless the carrier has consented or has waived its right in some way".

And in Schubert v. Heller, 235 App. Div. 20, there is distinct evidence of a conservative trend. Here an award was granted notwithstanding the allegation by the carrier that the accident occurred prior to the effective date of the insurance policy. The carrier claimed an error in the policy date, but the Industrial

Board denied reformation of the contract on the ground that it had no equity jurisdiction. Reformation of the contract was directed by the Court of Appeals. The Board reaffirmed its award after hearing evidence on the merits of the case, but the court on further appeal dismissed the award against the carrier with an opinion confirming the plea to the effect that the accident took place subsequent to the effective date of the policy.

In a study of court decisions, care must be exercised not to confuse the attitude of the courts with that of the Industrial Accident Commissions and their referees. It is perhaps true that Industrial Commissions are influenced to a large extent by the ideas of social welfare workers whose judgment is naturally biased in favor of the injured person and whose horizon is limited by the workers' real or imaginary economic loss. Equally partisan in the opposite direction may be found the employer upon whose shoulders rest the burden of mounting compensation costs. Between these two opposing forces, each representing extreme ideas, the courts seek to administer justice in a liberal but impartial spirit and in accordance with established principles that have withstood the test of time and experience.

Mr. Hobbs' paper contains a liberal digest of cases illustrating the impartial attitude of the courts. In this respect it serves to supplement similar and more comprehensive compilations as, for example—

Workmen's Compensation Law & Industrial Board Rules—N. Y.,

Workmen's Compensation Legislative Law Bulletins of the U. S. Department of Labor,

Law of Workmen's Compensation by W. R. Schneider.

From the standpoint of the actuarial student, the frequent reference to cases offers a distraction which might have been avoided if the digest had been relegated to an appendix.

The reader who expects to find in Mr. Hobbs' paper confirmation of the belief that the courts have shown a growing spirit of liberalism will be disappointed. On the question of liberalism the author takes an impartial position, giving expression in his *résumé* to the effect "that the courts have on the whole exerted their powers in the direction of order, consistency and logic and

with an appreciation that, while the acts were designed for the benefit of the employee, the rights of the employer must also be considered". This answer will fail to satisfy the critics of our compensation system. I have in mind an address delivered recently by Mr. F. Robertson Jones entitled "Ominous Abuses Threatening the Insurability of Workmen's Compensation". One gets the impression from this address that the decisions of the courts are not only liberal but even partisan. Mr. Hobbs' paper is of value in that it serves to destroy such impression; it is prosaic in tone and judicial in character; it is non-partisan in spirit and the conclusions are substantially accurate.

My own judgment is based not only on cases from the law books, but also on opinions from disinterested sources. Naturally attorneys whose practice consists in contesting compensation claims are bound to get a biased view. On the other hand disinterested opinion seems to substantiate Mr. Hobbs' ideas to the effect that compensation cases on appeal are weighed in the same scales, measured by the same rules and determined in the same manner as all other questions of law, *i.e.*, by the fundamental principles applicable to the law of contracts, agency, master and servant, etc.

If Mr. Hobbs' study of court decisions has missed the objective which was in the minds of the Program Committee, it is not the fault of the author. Possibly the time is not ripe for a conclusive answer to the question originally designed as the central theme of Mr. Hobbs' paper. Some day a more precise answer may come to this question. It will require a far more elaborate study undertaken in a spirit of what the French call "libre recherche scientifique". When such a study is undertaken it would be my idea to concentrate attention on outstanding decisions in a relatively few states on a relatively few but important phases of the system for the purpose of discovering judicial trends and tendencies. It may then be possible to ascertain whether there truly exists a rising spirit of liberalism in the adjudication of cases involving the workmen's compensation law.

As a part of such study it will be interesting to develop the extent to which the courts have gone in the way of exercising legislative functions, for it is well known that court interpretation does not limit itself to the letter of the law. Judicial en-

croachment upon legislative function is frequent and at times becomes so material as to constitute a substantive change. This I have pointed out some years ago in my own modest study of court decisions in New York (A Study of Judicial Decisions in New York Workmen's Compensation Cases, *Proceedings*, Vol. XII, Page 73). After all, legislative enactments are lifeless and colorless until moulded by the judiciary into workable instruments for the material or spiritual uplift of the community.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. CLARENCE W. HOBBS:

These discussions of my paper are too complimentary in tone to justify a rebuttal in detail. It is something of a gratification to find the main criticism one of non-feasance: a mild rebuke for failing to cover the subject more extensively and in greater detail. It is a just criticism. The field covered is but a minor part of the voluminous case-law on the workmen's compensation acts. It was chosen as being the part of the field most pertinent to the work of the National Council, and the part I have had most frequent occasion to traverse. It raises a host of law points, which are, perhaps, more truly indicative of the attitude of the courts than questions of mixed law and fact. To Mr. Senior's charge of failure to develop fully the trend of decisions on questions so copiously litigated as the length to which the courts will go in accepting as final the decisions of Industrial Commissions on questions of fact, the broad field of injuries "arising out of and in the course of employment" and the distinction between injuries due to accident and injuries due to disease, I can but plead guilty, alleging as my excuse no lack of appreciation of the importance of these questions but limitation of time, and some lingering scruples of conscience as to the amount of space I might fairly occupy. The full field could hardly be covered without writing a book.

A point touched on by both Mr. Jones and Mr. Senior is the failure to cover completely the subject of conflicting jurisdictions. The cases on this subject are many, but frankly irreconcilable. A part of the confusion appears to be due to a shift in the view of the courts as to the nature of the obligation to pay and

the right to receive compensation. The earlier view was, that these were incidents annexed by statute to the contract of service. If so, the state which has jurisdiction of the making of the contract is the state whose compensation law should govern. But the cases involving the maritime jurisdiction of the United States made this view untenable. The maritime jurisdiction of the United States applies to contracts of service maritime in character: but the Supreme Court of the United States indicated that State Compensation Acts might under some circumstances apply to employees whose contracts of service were characteristically maritime. This of necessity compelled an abandonment of the *ex-contractu* theory, and the development of a doctrine that rights and obligations are statutory incidents of the status of master and servant. Consequently, there is no need to refer back to the state where the contract was made. It is sufficient if the status exists in a particular jurisdiction for the compensation laws of that jurisdiction to apply. A decree binding on both employer and employee cannot, however, be made, unless the state has jurisdiction over both.

One other comment may be made on Mr. Jones' discussion. It is rather evident that Mr. Jones feels that the courts have not gone nearly far enough in holding the legislature to a straight and narrow path. It is probably true that our compensation laws were originally drafted upon European models with the idea that indemnity should be closely related to actual loss of earning power. But this idea has not been adhered to by the legislatures and is not necessarily the entire extent of legislative authority on the subject. The decisions of the Supreme Court of the United States upon the constitutional limits of legislative activity do exhibit an increasing liberalism; and I think this is mentioned in the conclusion of my paper. On the other hand, for the court to have written into the constitution such a limitation as Mr. Jones envisions would trench somewhat closely on the field of judicial legislation.

I am not disposed to dispute with Mr. Jones the point that the compensation laws have gone to the extreme of liberality, and that the need of a check is apparent. The compensation laws and the interpretations by industrial commissions are creatures of an age that is very possibly a thing of the past, when industry

was prosperous and when burdens were blithely imposed and accepted with pious resignation. The process could not go on, and cannot continue without a Fortunatus purse to finance it. Now industry is particularly hard hit, and burdens once tolerable have become crushing. But, unless we are prepared to reject altogether the democratic formula, the remedy is for the legislature to apply. That the legislature has been unwise, improvident or liberal beyond measure is no ground for the intervention of the courts save in such cases as the courts feel justified in interposing a "rule of reason". Governmental authority must reside somewhere, and it is vain to hope materially to guide or limit legislative discretion by vigorous application of "the rusty curb of Old Father Antic, the Law".

THE CHEMICAL AND DYESTUFF RATING PLAN—HARRY F. RICHARDSON
VOLUME XVIII, PAGE 385

WRITTEN DISCUSSION

MR. GEORGE A. COWEE:

In reviewing this paper it is evident that the author has covered the description and operation of this unique rating plan in a characteristically thorough and comprehensive manner, outlining its advantages, weaknesses, and several construction suggestions for consideration.

You will recall that Mr. Richardson stated that the classifications employed for workmen's compensation insurance have been erected on three broad bases namely, (1) the product, (2) the process, or (3) the business, and that few, if any, classifications involve more than one of these three principles of classification.

Mr. Richardson pointed out that the Chemical and Dyestuff Rating Plan is the exception wherein both the raw material or product constitutes one factor, and the process involved another factor in determining rate groups and classifications, these being identified by code numbers only.

It must be admitted, by any one familiar with this rating plan, that it is an imperfect, yet ingenious, instrument for rating purposes and that its application results in only an approximation for determining rates in connection with a very involved and complicated problem. Anyone at all familiar with chemistry is

cognizant of the vast realm of chemical formulæ to which some classification system for rating purposes must necessarily be applied.

It will be recalled that risks which are rated under the chemical plan are grouped under code number classifications according to (1) the degree of hazard involved in the raw materials or the final product and (2) the degree of the hazard created by or during the processes of transforming the raw materials into the final product. The hazards of the former are measured in terms of "flammability" or their explosive qualities and represented as abscissae on a code classification and rate chart containing twenty-four different code numbers, while the latter are grouped into hazards according to the processes of transforming the raw materials into the final product and represented by ordinates on the rate chart.

The flammability or explosion hazard of a material is measured in terms of "flash-point" and a list of raw materials and products grouped according to flash-point are found in Table A of the plan. A grouping of the processes by hazard is found in Table B. The code number classification is, therefore, determined by the application of the hazards represented by both the abscissae and ordinates.

The highest rated hazard of both factors is used to determine the rate group in which the classification of the risk falls. Herein lies a certain weakness, since the highest hazard of either factor may represent a relatively small or incidental proportion of all the hazards on the average in a particular risk. A limited and incidental use of certain high hazard raw materials and processes determines the classification for the risk—not the average hazard. Practical difficulties have been encountered in not a few cases in attempting to justify rates so determined for particular risks. Furthermore, in most chemical risks, the hazard varies greatly at different times depending upon the demand for different types of chemical compounds or products. The rating of a risk today might produce an entirely different result from the rating of the same risk six months hence. It is doubtful if the hazards in any but a few other classifications fluctuate over as wide a range as they do under any specific chemical classification. Very dissimilar raw materials, products and processes may be

found under the same chemical classification code number in different risks.

An attempt to iron out the difficulties described above is represented by the so-called "average rating" employed in connection with the Chemical and Dyestuff Rating Plan. In other words, where the risk engages in a number of separate and distinct chemical processes, in different buildings or departments separated by so-called party or fire walls, an average rate is determined based upon the hazards and the number of employees in different departments. A weighted average is thus obtained. Even here, however, the hazards also fluctuate over a considerable range within the different departments and consequently within the risk as a whole.

Another weakness from a statistical standpoint, as Mr. Richardson has pointed out, is that approximately 50 per cent. of the experience is concentrated under those statistical code numbers which involve "average rating" and since this experience does not represent the hazard of a specific chemical process the use of such data in determining rates is questionable and somewhat objectionable. It has not, therefore, been utilized for rate making purposes. As respects the remainder of the experience, 85 per cent. of the payroll is concentrated in five of the twenty-four classifications, and about 45 per cent. of all the payroll is concentrated under one code number. The rates for the remaining groups, therefore, have to be determined largely by analogy or comparative hazards based to a considerable extent upon judgment.

Relativity of hazards in process groups 3, 4, 5 and 6 seems to have been now established, based on experience, with at least some degree of dependability, although it should be pointed out that this experience has been controlled and influenced to some degree by the hazards represented by the "flash-point" of the raw materials or products. Too much reliance, therefore, cannot be placed upon the existing relativity which, particularly in connection with groups 1 and 2, is largely conjectural.

As regards the "flammability" or "flash-point" in groups *A*, *B*, *C* and *D*, Mr. Richardson stated that, in the original plan, it was assumed that the maximum differential should be 200 per cent. whereas at present, based upon the experience available, it is now

slightly less than 25 per cent. He advances the opinion that the chemical engineers who originally developed the plan somewhat exaggerated the flammability or explosive hazard involved; on the other hand it is quite probable that the hazards of flammability are of a catastrophic nature, which is undoubtedly true, particularly in the highest rate group, which could only be expressed with dependability on an extremely broad volume of exposure.

Mr. Richardson points out that it would appear that the premise of using uniform rates for the diagonal squares of the diagram is not justified because the hazard differentials for the processes groups appear to vary more markedly than do the hazard differentials of the flammability groups. Whether this is so or not is problematical. At present it is necessarily a matter of individual or collective judgment. It may well be that the differential between groups *A* and *B*, for example, is too small rather than too high since *A* represents the most hazardous group as regards the flammability or explosion hazard. It should also be pointed out that the experience in the flammability groups is controlled and influenced to a considerable degree by the experience in the processes groups.

The foregoing illustrates the intricate problems with which chemical engineers and underwriters have to deal in formulating any workable plan for the rating of chemical risks. Improvements in the plan will undoubtedly develop from time to time as more experience is accumulated. Although the plan contains many uncertainties, a certain degree of unfairness and discrimination, and many imperfections, yet it has proven to be practicable and, as contrasted with the previous hit or miss method of rating, serves as a very useful and logical rating instrument.

MR. ALLAN W. WAITE:

From an underwriting point of view we are in agreement with Mr. Richardson that a plan of this type comprised of the charting of a risk according to its abscissa and ordinate, especially for chemical and dyestuff rating where there is such a diversity of hazard, has proved itself an effective plan of classification and rating.

Scientifically, this plan should lend itself to accuracy because the factors taken into consideration, namely, flashpoint, explosibility, corrosion, causticity and poison hazard, can be specifically assigned to a rate making plan with a high degree of accuracy.

It is my understanding that the originators of this plan had in mind the fact that sooner or later the twenty-four classifications now incorporated under the Chemical and Dyestuff Rating Plan would ultimately be condensed so as to make the plan not only easier to apply but also to decrease the possibility of the misplacing of a risk by an inexperienced underwriter because of the extreme flexibility of the Plan. From an underwriting point of view the main question concerning the use of this rating plan is whether the flexibility of the plan with twenty-four classifications is of greater value in caring for our multitudinous ramifications in the chemical industry than would result from a plan limited to nine or sixteen classifications.

In all fairness to the discussion of this paper, we must take cognizance of the fact that Mr. Richardson points out: "It is unfortunate that the remaining experience—85 per cent. of the payroll—is concentrated in five of the twenty-four classifications, and that about 45 per cent. of all the payroll available for the determination of the relative hazards of the several classifications is concentrated in one square, namely Code 4815 (D-4)."

While we realize that this plan is still in a process of evolution, it would seem in line with scientific underwriting to follow very closely the experience developed on each one of these classifications so that when a revision is made, careful consideration may be given to the possibility of concentrating our actual experience on the Chemical and Dyestuff Rating Plan within fewer classifications, thus making the actual experience in each group of more value because of increased volume.

From an underwriting point of view the real problem connected with the Chemical and Dyestuff Rating Plan consists in the fact that the larger chemical risks which in reality fall within a number of these coded classifications eventually have their rates promulgated under one or two specific classifications. When this experience is compiled, it will not reflect the exact loss ratio in that classification because it is in reality a composite of a large number of classifications of the plan.

While we realize that the problem of rating chemical and dyestuff risks does not lend itself to ready solution insofar as classification is concerned, we believe that the present plan is far superior to the old method of rating this type of risk wherein every chemical risk was dealt with as an *A* classification and individually rated. We believe, however, that Mr. Richardson's paper has brought out the need of study of the Chemical and Dyestuff Rating Plan from the viewpoint of economy and efficiency of application, and accuracy of compiled experience. If the Chemical and Dyestuff Rating Plan eventually lends itself to the ultimate end of providing a dumping ground in one classification of a large number of hazards which might be more accurately measured by other specific classifications in the group, we are not getting the accurate experience necessary in the rating of our Compensation business.

As Mr. Richardson has pointed out, it is true that the results of experience rating risks which are subject to the Chemical Plan have shown wide fluctuations from the basic rates, probably greater than for other groups of risks. It would seem that the condensing of this rating plan to a smaller number of classifications would result in even a wider fluctuation from the basic rates. If there is any group of classifications which should lend itself to a wide swing in the experience rating plan, it would naturally be a classification with a diversity of exposure similar to the chemical industry. This might be because of a number of reasons; primarily because of the diversity of methods and processes in our chemical industries, even though these industries may be producing identically the same product.

AUTHOR'S REVIEW OF DISCUSSIONS

MR. H. F. RICHARDSON:

The author wishes to thank Messrs. Cowee and Waite for emphasizing some of the more serious defects of the Chemical and Dyestuff Rating Plan. The sooner these defects become better understood, the sooner will attempts be made to properly correct them. These defects appear to be of two general types:

1. The underwriting difficulties of assigning a specific risk to the appropriate rate group. Among these underwriting difficul-

ties are the procedure of assigning a high hazard rate to an entire risk when only a small proportion of the total exposure is subject to the high hazard chemical or process; the fact that conditions vary from time to time as respects the chemical hazards within a given risk; that in the larger risks there may, in reality, be two or more separate and distinct situations as respects hazard. All of these constitute serious defects and, although "average rating" has apparently helped some, there is still much to be desired in the rules for assigning risks to the appropriate chemical classifications so that we can feel satisfied that these risks are being treated with equity and fairness.

2. The statistical basis of the rates. Because of the catastrophic nature of the hazards of certain materials and processes, and because of the limited use of such chemicals and processes, it will take a long time to develop sufficient experience to truly indicate the relative hazards of the various rate groups. Fortunately, our present basic methods of combining experience on a standard national level will eventually bring together enough experience to develop a dependable guide as to this relativity. Perhaps, as Mr. Waite suggests, the experience will indicate that fewer rate groups will suffice—if that is so it will, undoubtedly, help in the underwriting problems.

In spite of these defects, it is interesting to note that two such capable underwriters as Mr. Cowee and Mr. Waite, feel that the Chemical and Dyestuff Rating Plan is a decided improvement over the previous basis of rate assignment to risks of this character. That this start has been reasonably satisfactory should be a spur to those of us who are trying to improve the Plan to make it a truly scientific, practical and accurate rating instrument.